PIONEER®

Service Manual

REPAIR & ADJUSTMENTS

ORDER NO.
ART-678-0

STEREO CASSETTE TAPE DECK

CT-5

MODEL CT-5 COMES IN SIX VERSIONS DISTINGUISHED AS FOLLOWS:

Type	Volatge	Remarks
KU	120V only	U.S.A. model
KC	120V only	Canada model
HE	220V and 240V (switchable)	Europe model
HB	220V and 240V (switchable)	U.K. model
HP	220V and 240V (switchable)	Australia model
D	120V, 220V and 240V (switchable)	General export model

- **This service manual is applicable to the KU type. For servicing of the other types, please refer to the additional service manual.**
- **For the mechanism & circuit descriptions, please refer to the supplement of model CT-5 service manual (ARP-002).**
- **Ce manuel d'instruction se refère au mode de réglage, en français.**
- **Este manual de servicio trata del método de ajuste escrito en español.**

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YP © MAY 1981 Printed in Japan

1. SPECIFICATIONS

Specifications

Systems	Compact cassette, 2-channel stereo
Motor	DC servo motor x 1
Heads	"Hard Permallay" recording/playback head x 1 "Ferrite" Erasing head x 1
Fast Winding Time	Approximately 100 seconds (C-60 tape)
Wow and Flutter	No more than 0.05% (WRMS)
Frequency Response –20 dB recording:	
Normal, LH tapes	20 to 15,000 Hz (30 to 14,000 Hz ±3 dB)
Chromium dioxide tape	20 to 17,000 Hz (30 to 16,000 Hz ±3 dB) (0 dB recording; 30 to 8,000 Hz)
Metal tape	20 to 18,000 Hz (30 to 17,000 Hz ±3 dB) (0 dB recording; 30 to 12,500 Hz)
Signal-to-Noise Ratio	
Dolby NR OFF	More than 50 dB
Dolby NR ON	B Type more than 68 dB C Type more than 78 dB (over 5 kHz)
Harmonic Distortion	No more than 1.2% (0 dB)
Input (Sensitivity/Maximum allowable input/Impedance)	
MIC (L, R)	0.3 mV/57 mV/10 kΩ, 6 mm diam. jack (Reference MIC impedance; 250 Ω to 10 kΩ)
LINE (INPUT) x 2	50 mV/22 V/100 kΩ, Pin jack
Output (Reference level/Maximum level/Load impedance)	
LINE (OUTPUT) x 2	450 mV/50 kΩ, Pin jack
Headphones	65 mV/160 mV/8Ω,6 mm diam.jack

Subfunctions

- MS (Music Select) system
- REC muting switch
- Dolby NR B & C system (B & C, ON/OFF) with LED indicater lamp
- LED peak meter
- ALC (Auto matic level control)
- One touch recording system
- Stand-by mechanism with unattended recording
- Auto tape selector. (NORM/CrO_2/METAL)
- Full automatic stop mechanism

- Noise Reduction System manufactured under license from Dolby Laboratories Licensing Corporation.
- "Dolby" and the double-D ▯▯ symbol are trade marks of Dolby Laboratories Licensing Corporation.

Miscellaneous

Power Requirements	AC 120 V 60 Hz
Power Consumption	23 watts
Dimensions	420 (W) x 99.5 (H) x 243.5 (D) mm 16-9/16 (W) x 3-15/16 (H) x 9-9/16 (D) in.
Weight (without package)	4.5 kg (9 lb 15 oz)

Furnished Parts

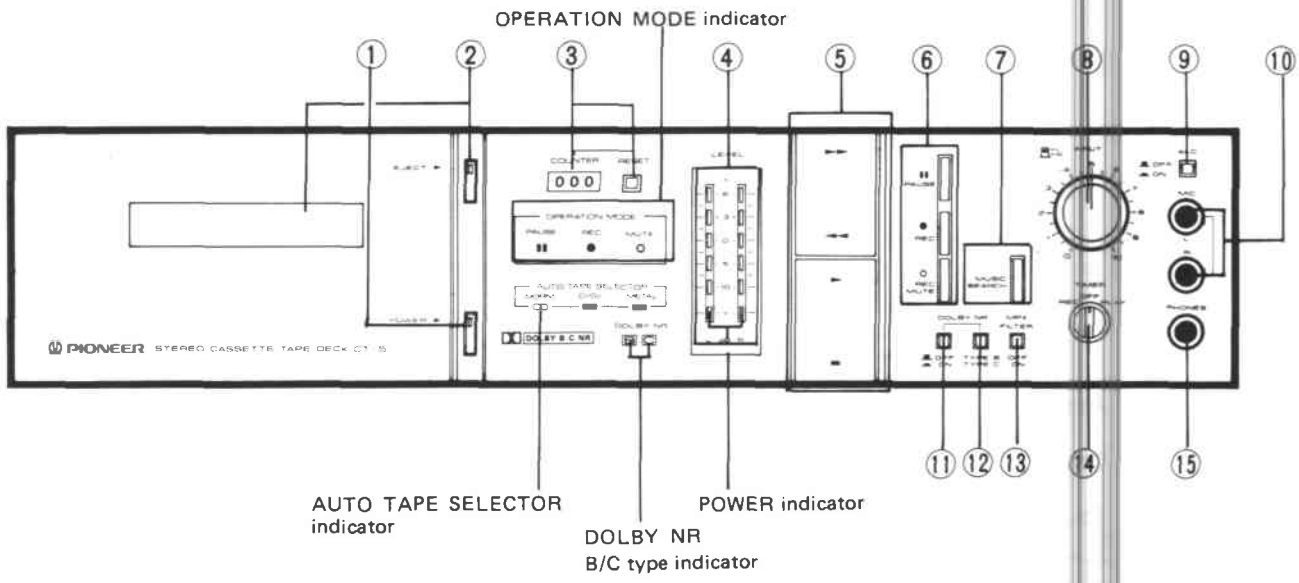
Connection cord with pin plugs	2
Operating instructions	1

Note:
Specifications and the design subject to possible modifications without notice due to improvements.

NOTES:

1. Reference Tapes: Normal & LH: DIN 45513/BLATT6 or equiv.
   CrO_2 DIN 45513/BLATT7 (CrO_2) or equiv.
2. Reference Recording Level: Meter 0 dB indicating lelel (160 nwb/m magnetic level = Philips cassette reference level)
3. Reference Signal: 333 Hz
4. Wow & Flutter: • JIS [3 kHz, with accustic compensation (weighted) rms value] DIN [3,150 Hz, with acoustic compensation (weighted) PEAK value]; DIN 45507
5. Frequency Response: • Measured at –20 dB level, DOLBY NR OFF, level deviation is ±6 dB without indication.
6. Signal to Noise Ratio: • Measured at the third harmonic distortion 3% level, weighted (DIN 45513/BLATT7).
7. Sensitivity: Input level (mV) required for reference recording level with input (REC) controls set to maximum.
8. Maximum Allowable Input: While decreasing settings of input (REC) level controls and increasing level at input jacks, this is the maximum input level (mV) at the point where recording amplifier output waveform becomes clipped.
9. Reference Output Level: Playback output level when meter indicates 0 dB.

2. FRONT PANEL FACILITIES



* The word "Dolby" and DD are trademark of Dolby Laboratories Licensing Corporation.

① POWER switch

Push this switch to turn on or turn off power. When switch is depressed power is supplied and POWER indicator lights. When switch is released power is turned off and POWER indicator is extinguished.

② EJECT button and cassette holder

The cassette tape is housed in this holder.

To open the holder: Depress the EJECT button.
To close the holder: Push the holder by hand.

③ Tape COUNTER/RESET switch

The tape counter indicates the tape's traveling position. Depress the RESET switch before recording or playback to reset the counter to "000".

④ LEVEL meter

These indicate the input or output level during recording or playback.

⑤ Playback function switches

Playback operations can be performed when the sections with the following symbols are depressed:

- ▶▶ **(fast forward):** The tape runs at high speed from left to right.
- ◀◀ **(rewind):** The tape runs at high speed from right to left.
- ▶ **(play):** The tape is played.
- ■ **(stop):** The tape is stopped.

⑥ Recording function switches

Recording operations can be performed when the switches with the following symbols are depresses:

PAUSE: The tape travel (during recording) can be temporarily suspended (recording standby mode). Depress this switch again to resume recording.

REC: Recording can be started.

REC MUTE: This enables unrecorded blanks to be created between programs for convenient play functions (Music Search).

⑦ MUSIC SEARCH switch

Set to ON when automatically searching the start of a program. Normally, this switch is kept at the OFF position.

⑧ INPUT level controls

These are used to adjust the input signal level during recording with the ALC switch at the OFF position. The left and right controls are linked and rotate together but the inside left channel and outside right channel controls can be used separately.

⑨ ALC switch

When this is set to the ON position, the input signal level during recording is adjusted automatically. Use it when it is relatively hard to adjust the recording level or when something is to be recorded in a hurry.

⑩ MIC jacks

Insert the microphone plugs (L and R) into these jacks when recording with microphones.

⑪ DOLBY*NR ON/OFF switch

Depress this to the ON position when recording or playing back a tape with the Dolby noise reduction system.

⑫ DOLBY NR B/C type selector

Depress this to select type B or type C Dolby NR system. (The center [B] [C] indicators light in response.)

⑬ MPX FILTER switch

Depress this when recording an FM program with the Dolby noise reduction system.

⑭ TIMER start switch

This switch is operated for unattended recording or playback using the timer.

- **REC:** For automatically recording at the time set on the timer.
- **OFF:** For when the timer is not being used.
- **PLAY:** For automatic playback at the time set on the timer.

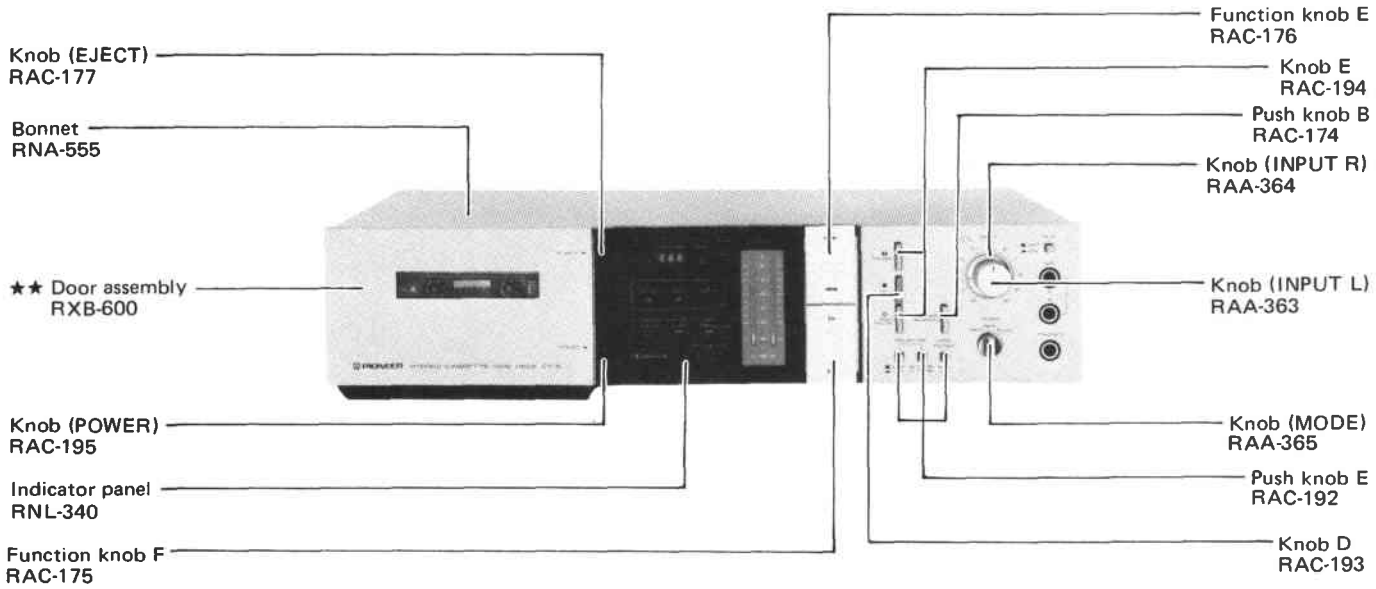
⑮ PHONES jack

Insert the plug of the stereo headphones into this jack.

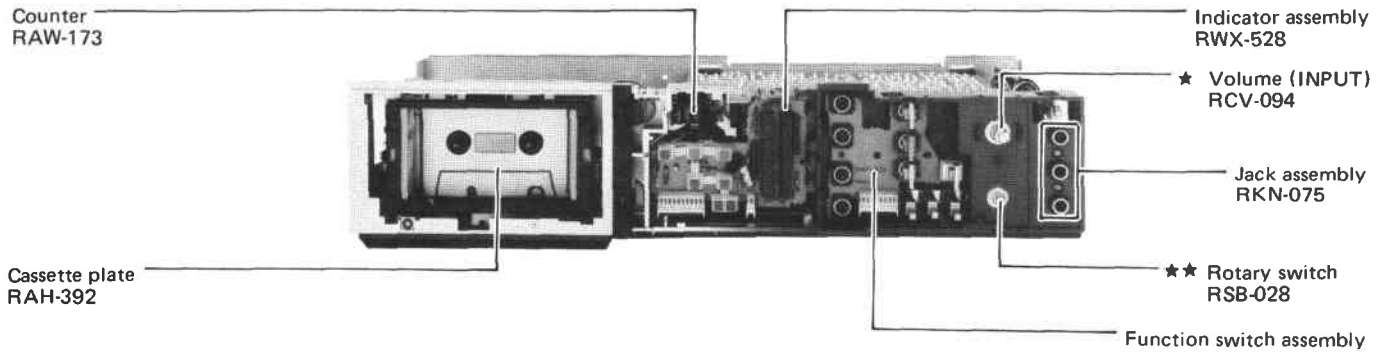
4. PARTS LOCATION

- *Parts without part number cannot be supplied.*
- *The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.*
- *For your Parts Stock Control, the fast moving items are indicated with the marks ★★ and ★.*
  ★★ GENERALLY MOVES FASTER THAN ★.
  This classification shall be adjusted by each distributor because it depends on model number, temperature, humidity, etc.

Front Panel View



Front View with Panel Removed



3. DISASSEMBLY

Do not apply unnecessary force to hooks since this may result in damage.

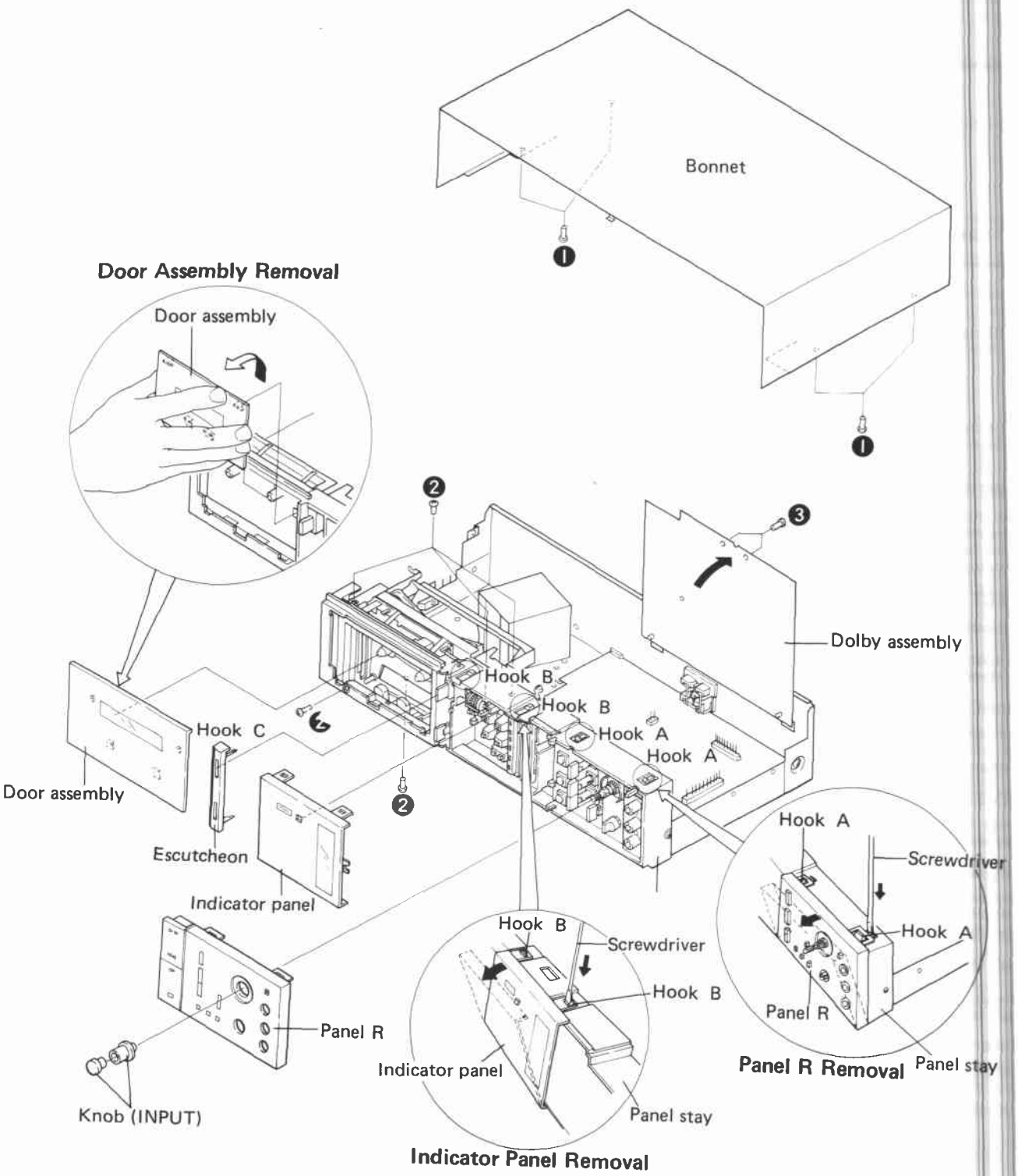


Fig. 3-1 Disassembly 1

Bonnet Removal
Remove the four screws ❶.

Panel R Removal
1. Pull off the INPUT VOLUME knobs.
2. Gently push the hooks A of the panel stay with the screwdriver.

Indicator Panel Removal
Gently push the hooks B of the panel stay with the small screwdriver.

Escutcheon Removal
Gently push the hooks C of the escutcheon.

Door Assembly Removal
1. Depress the EJECT button and open the cassette holder.
2. Pull up the door assembly and remove it.

Mechanism Assembly Removal
1. Remove the counter belt.
2. Remove the six screws ❷.

Dolby Assembly Removal
Remove the two screws ❸.

Indicator Assembly Removal
Remove the hooks D and the screw ❹.

Function Switch Removal
Remove the hooks E and the screw ❺.

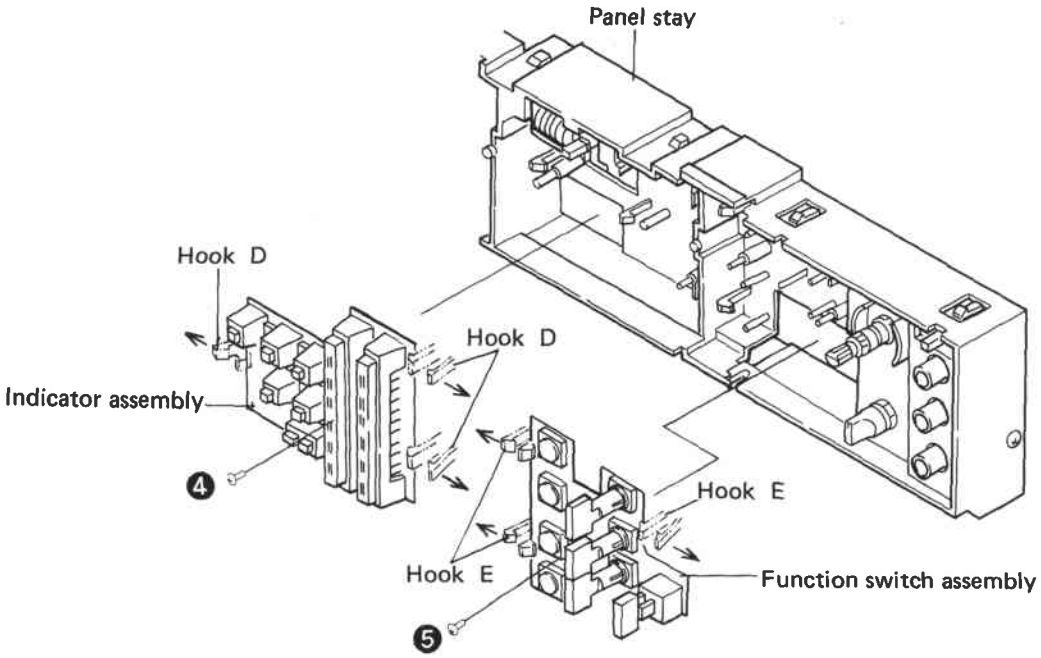


Fig. 3-2 Disassembly 2

5. EXPLODED VIEWS AND PARTS LIST

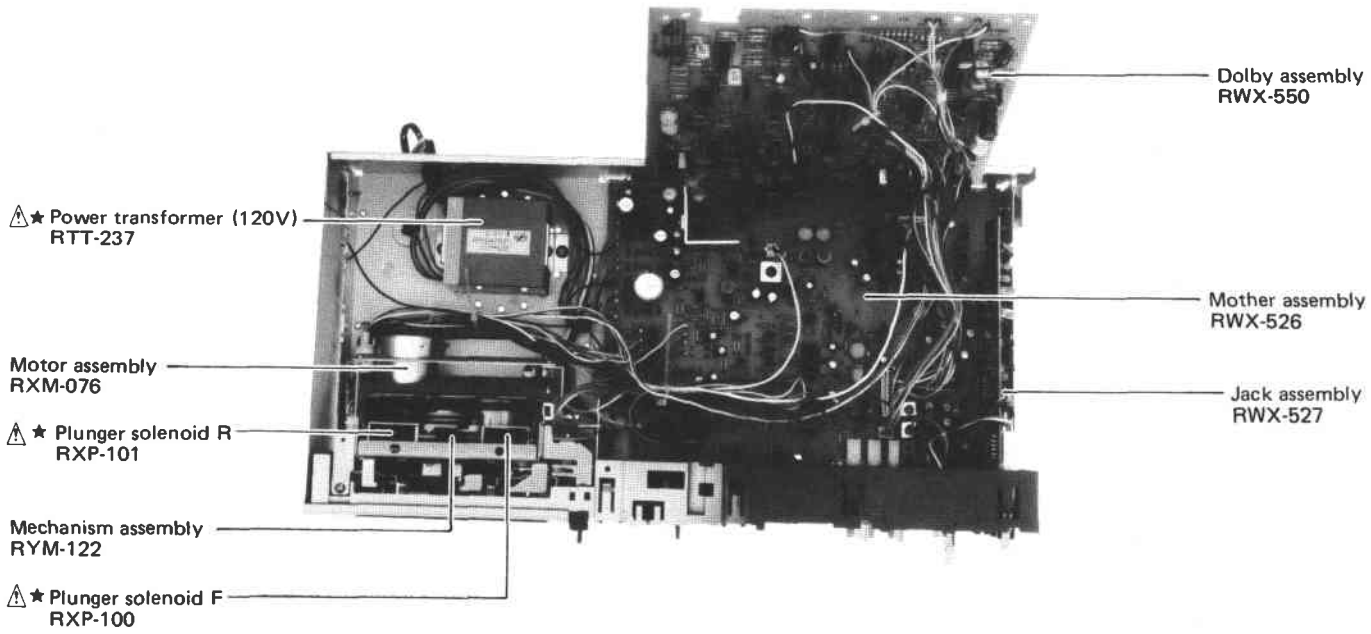
NOTES:

- *Parts without part number cannot be supplied.*
- *The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.*
- *For your Parts Stock Control, the fast moving items are indicated with the marks ★★ and ★.*
  ★★ *GENERALLY MOVES FASTER THAN* ★.
  This classification shall be adjusted by each distributor because it depends on model number, temperature, humidity, etc.

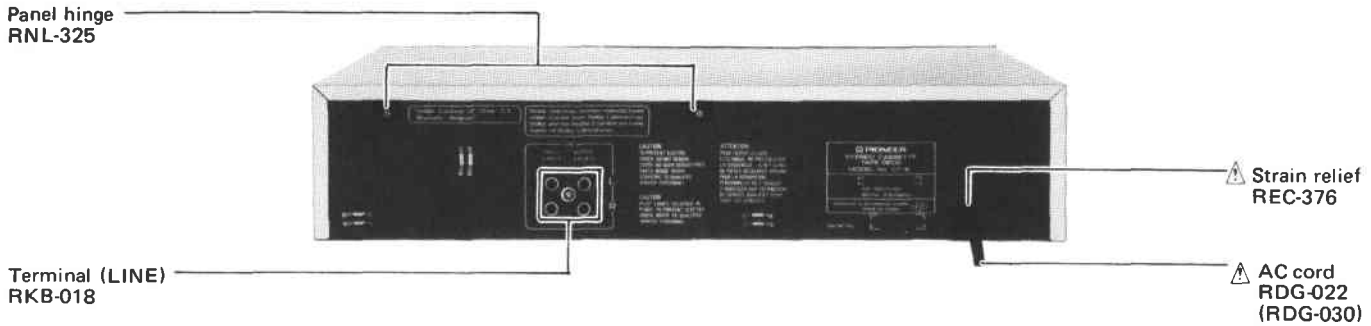
Parts List

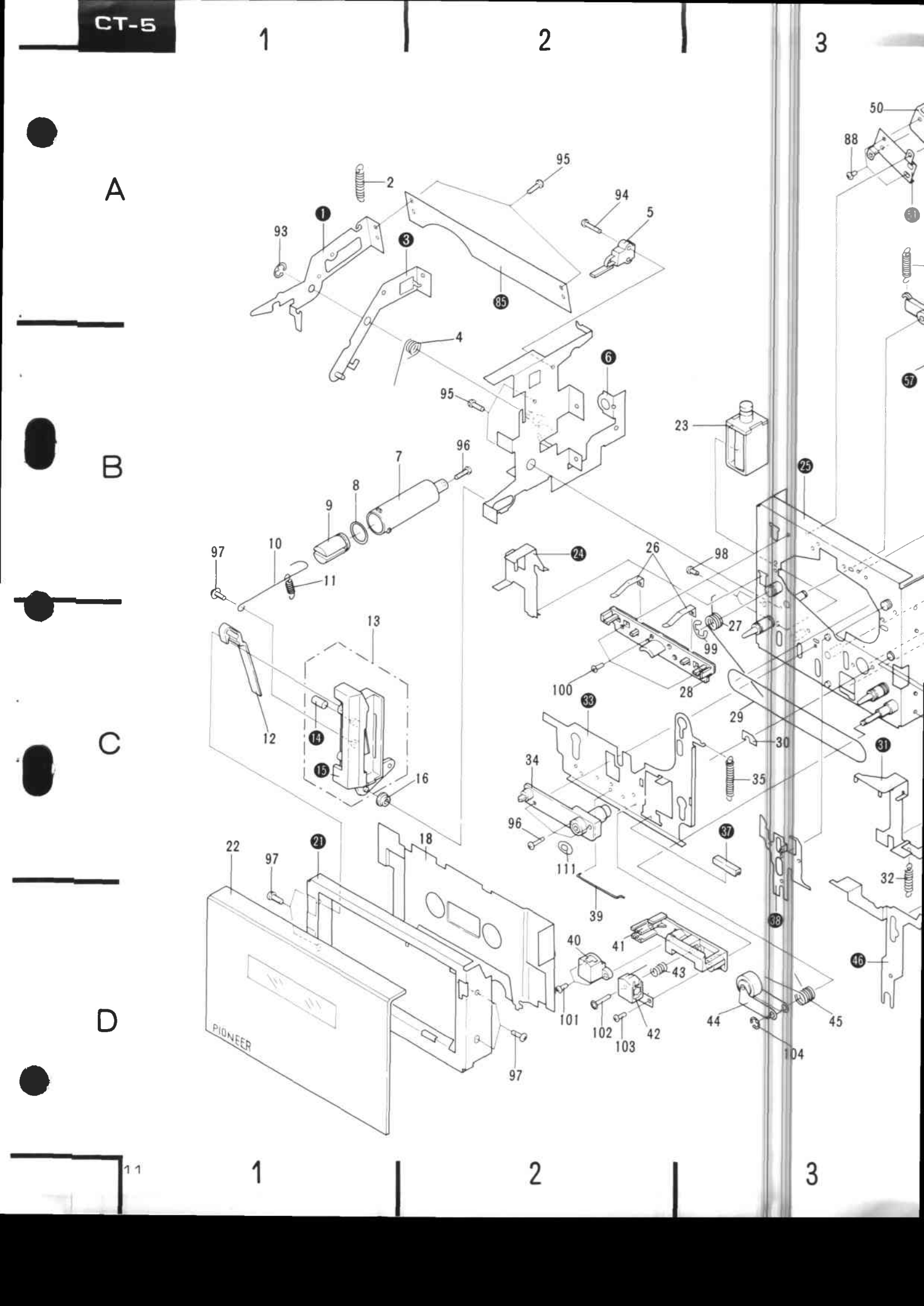
Mark	No.	Part No.	Description
	1.	RNA-555	Bonnet
	2.	RYM-122	Mechanism assembly
	3.	RAH-392	Cassette plate
	4.		Panel stay
	5.	RBH-897	Eject spring
	6.		Eject plate
	7.	RAC-177	Knob (EJECT)
	8.	RAW-173	Counter
	9.	RAC-195	Knob (POWER)
	10.	RAA-365	Knob (MODE)
	11.	.....	.....
	12.	RWX-528	Indicator assembly
	13.	RNL-341	Meter holder
	14.	RNL-340	Indicator panel
	15.	RXB-600	Door assembly
	16.	.....	.....
	17.	RNL-338	Switch escutcheon
	18.	.....	.....
	19.		Function switch assembly
	20.	RAC-193	Knob D
	21.	RAC-194	Knob E
	22.	RAC-174	Push knob B
	23.	RAC-192	Push knob E
	24.	RNL-355	Panel R
	25.	RBH-898	Function spring
	26.	RAC-176	Function knob E
	27.	RAC-175	Function knob F
	28.	RAA-364	Knob (INPUT R)
	29.	RAA-363	Knob (INPUT L)
⚠ ★	30.	RTT-237	Power transformer (120V)
⚠	31.		Wire nut
	32.		Bottom plate
⚠	33.	REC-376	Strain relief
	34.		Serial No. plate
⚠	35.	RDG-022	AC cord
⚠		(RDG-030)	
	36.		Main chassis
	37.	.....	.....
	38.	REC-369	Foot assembly
	39.		Sensor assembly
⚠ ★★	40.	RSA-048	Power switch
★★	41.	REB-457	Counter belt
	42.		Volume assembly
	43.	.....	.....
	44.	RWX-527	Jack assembly
	45.	.....	.....
	46.	RWX-550	Dolby assembly
	47.	RNL-325	Panel hinge
	48.	RWX-526	Mother assembly
	49.	RKP-297	Connector assembly 6P
	50.		Connector assembly 2P
	51.		UL cord clamper
	52.	.....	.....
	53.	RBA-057	Screw
	54.	VCZ30P060FMC	Screw
	55.	VCZ30P060FZK	Screw
	56.	VBZ40P080FMC	Screw
	57.	VBZ30P080FZK	Screw
	58.		Rivet
	59.	RCG-006	Capacitor (0.01/AC 250)
	60.	VCZ30P080FMC	Screw
	61.	VBZ30P140FMC	Screw
	62.	VPZ30P100FMC	Screw
	63.	BCZ30P080FNC	Screw

Top View with Bonnet Removed



Rear Panel View

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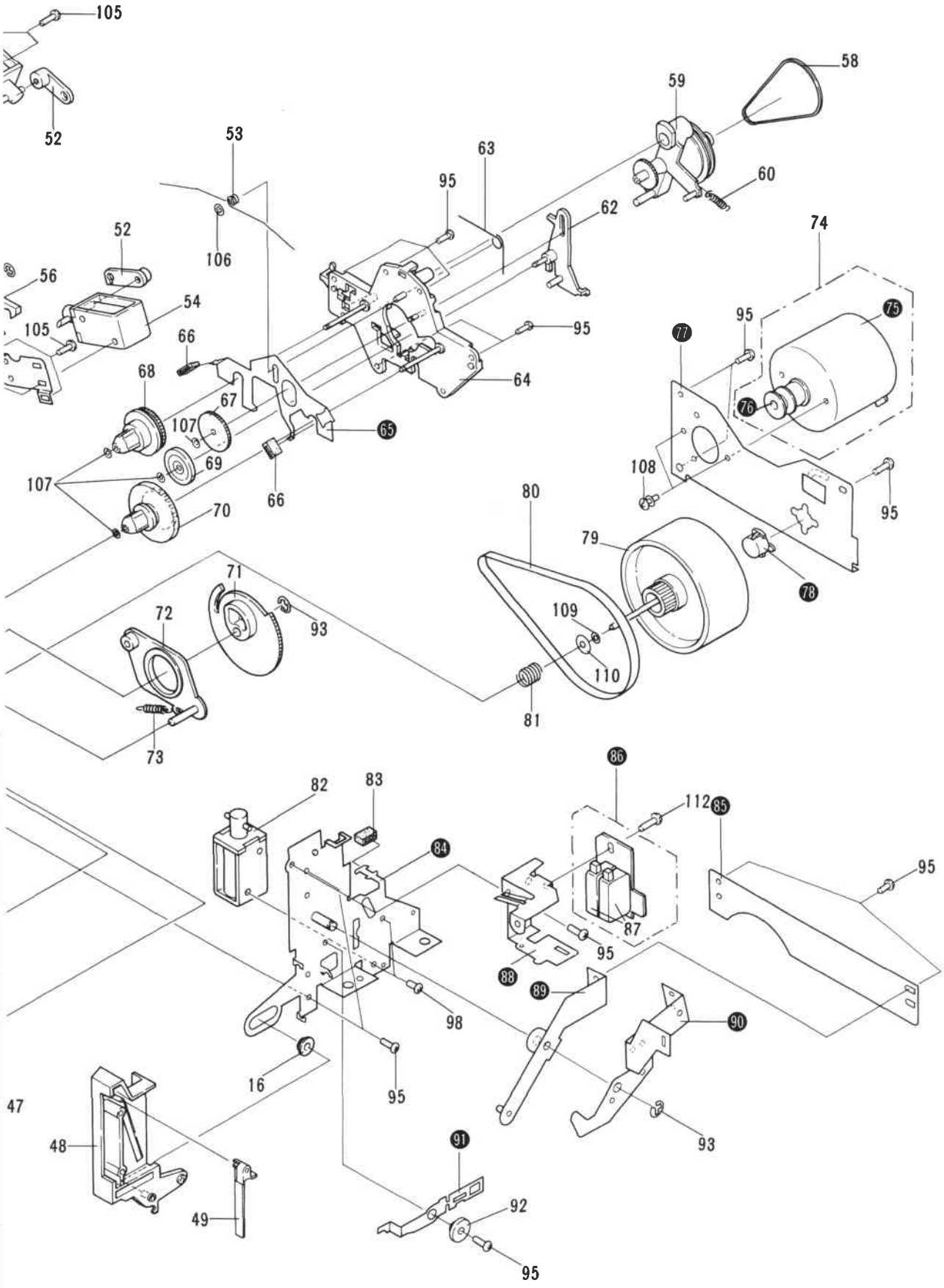
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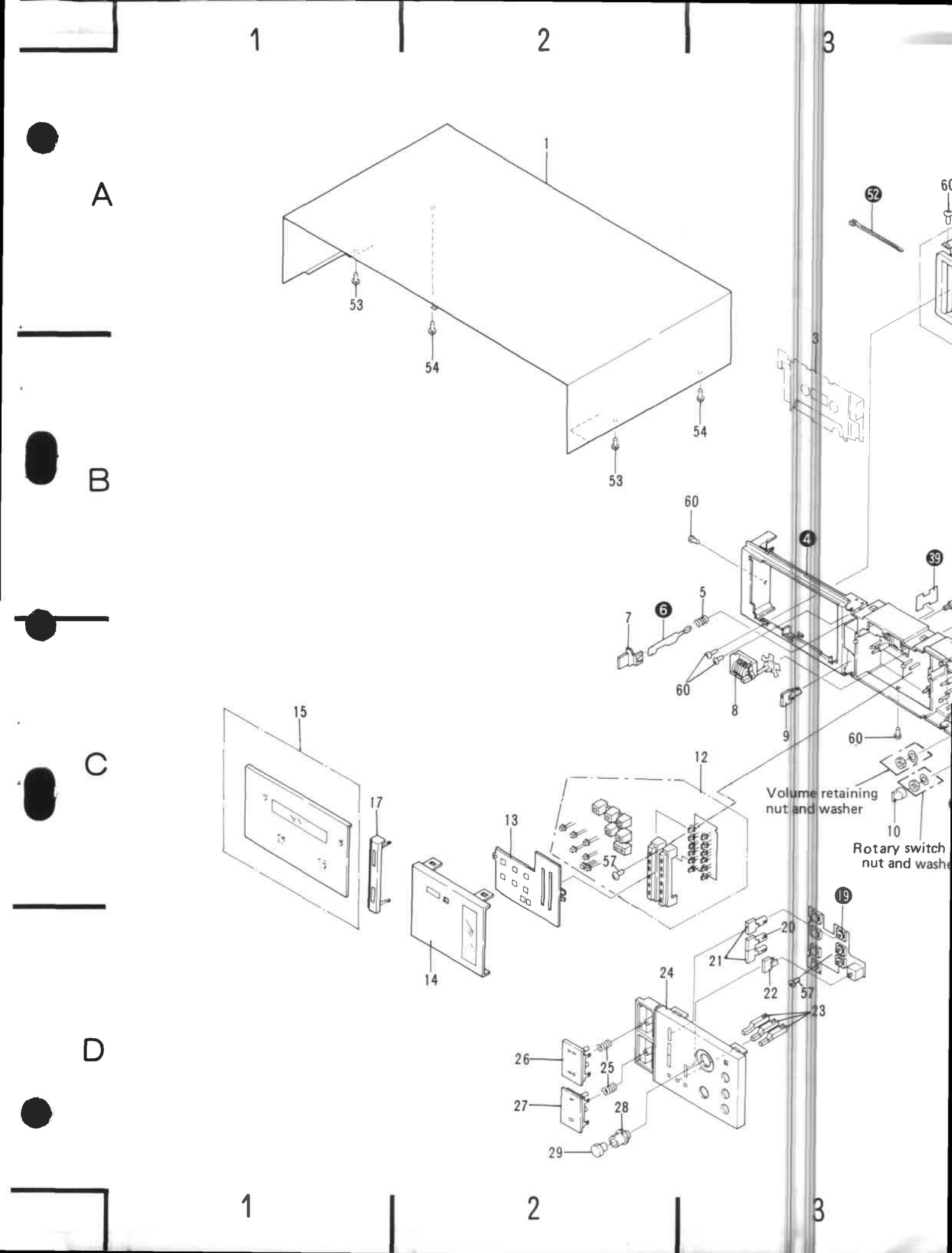
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Volume retaining nut and washer
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Rotary switch nut and washe
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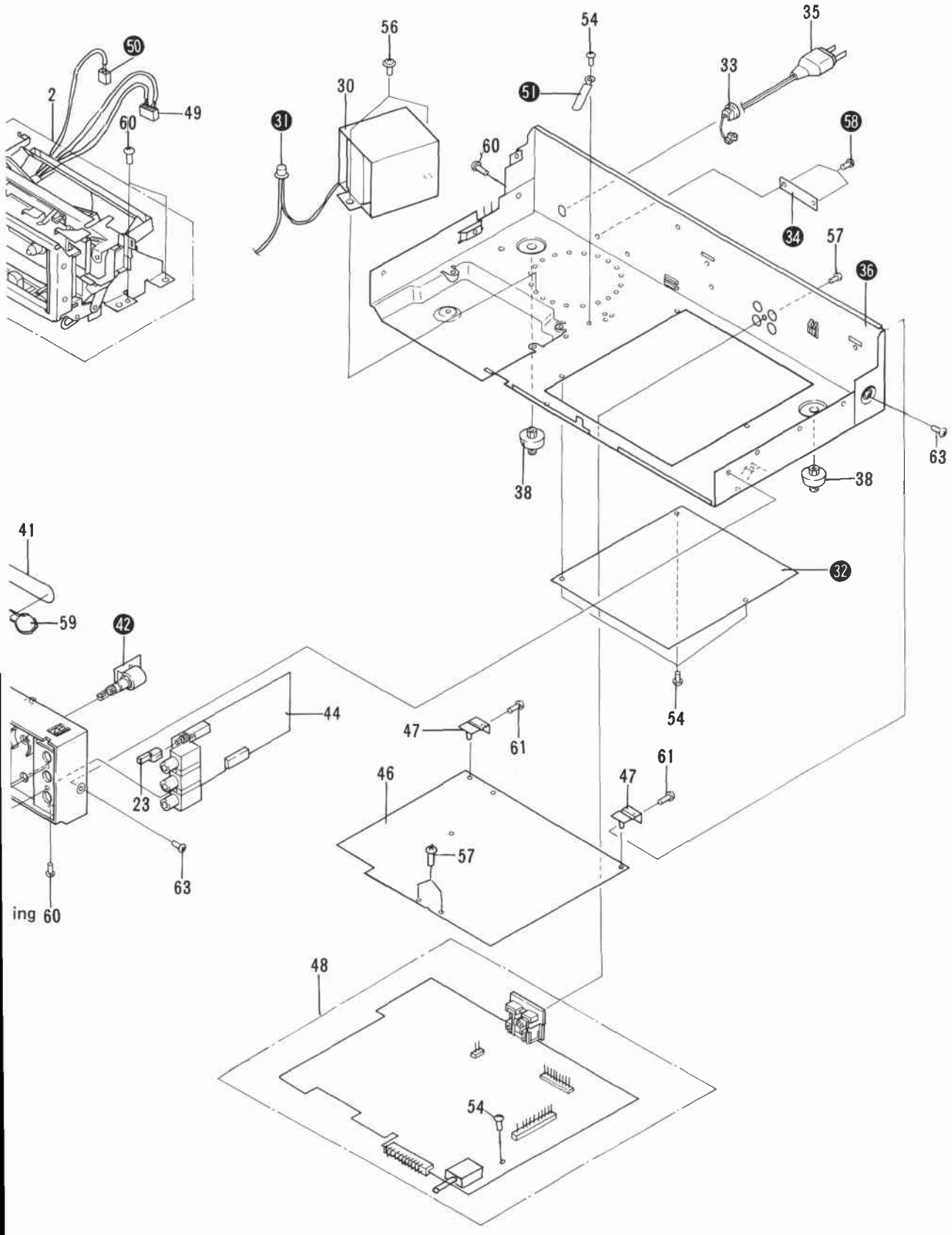
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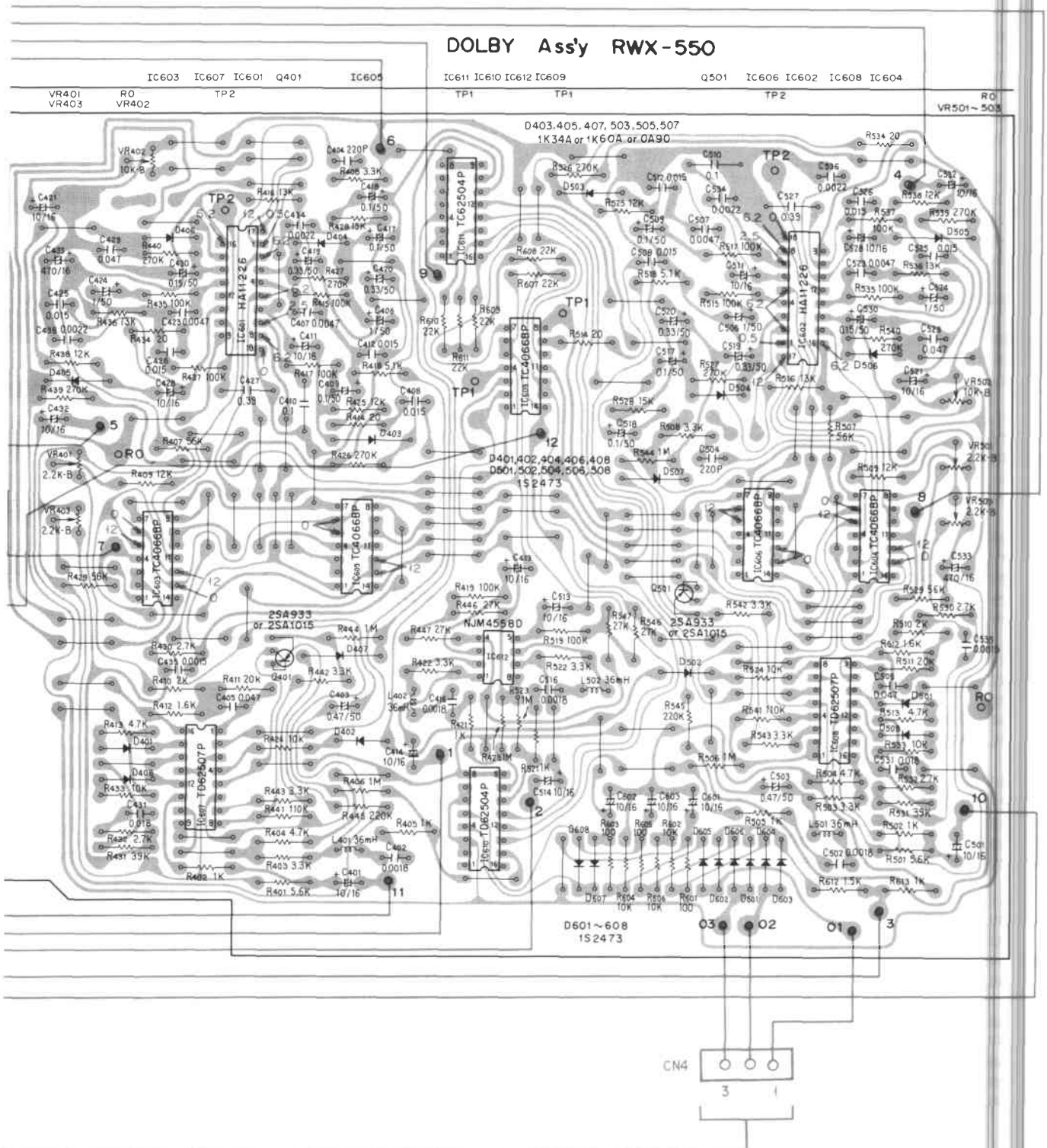
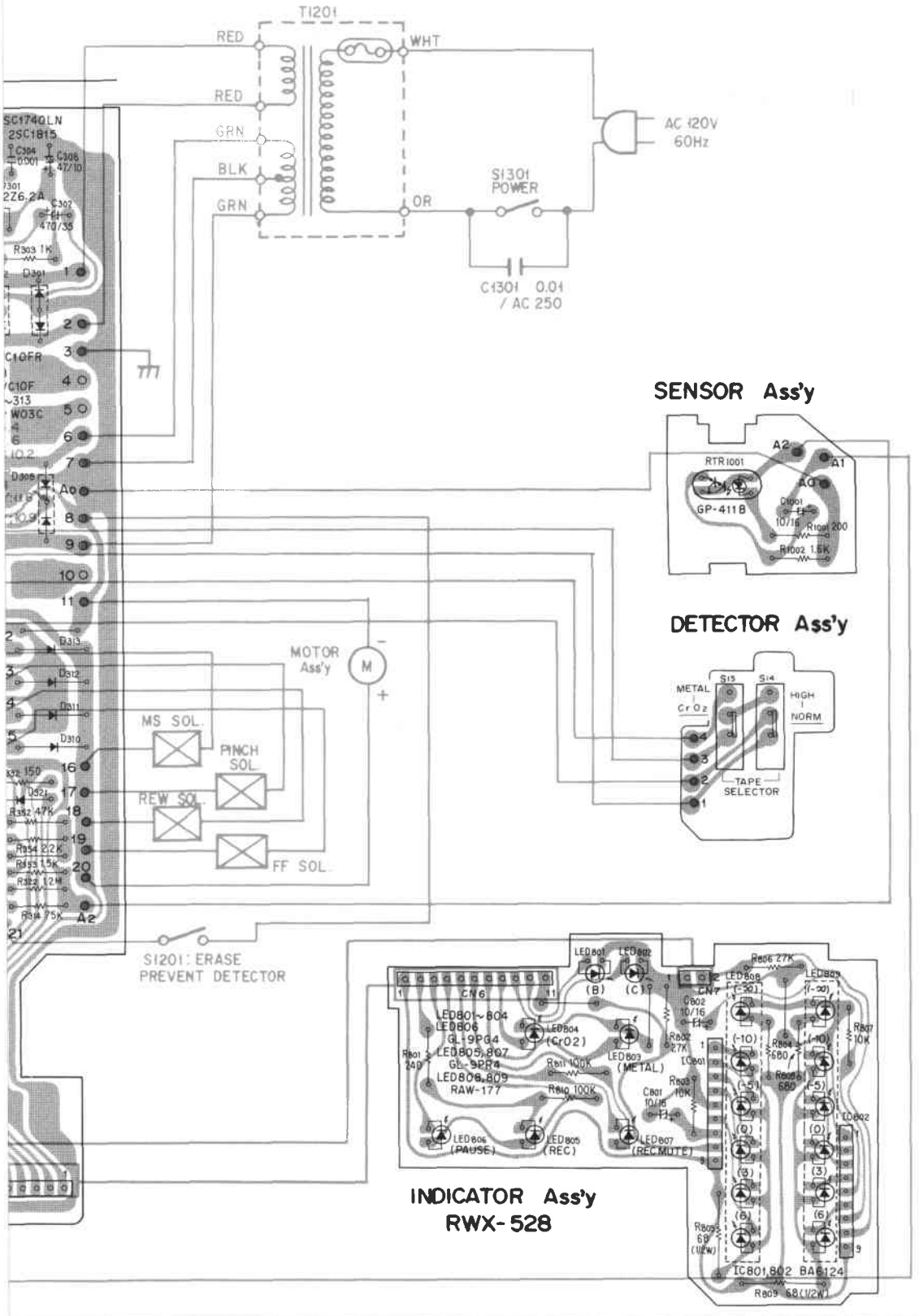
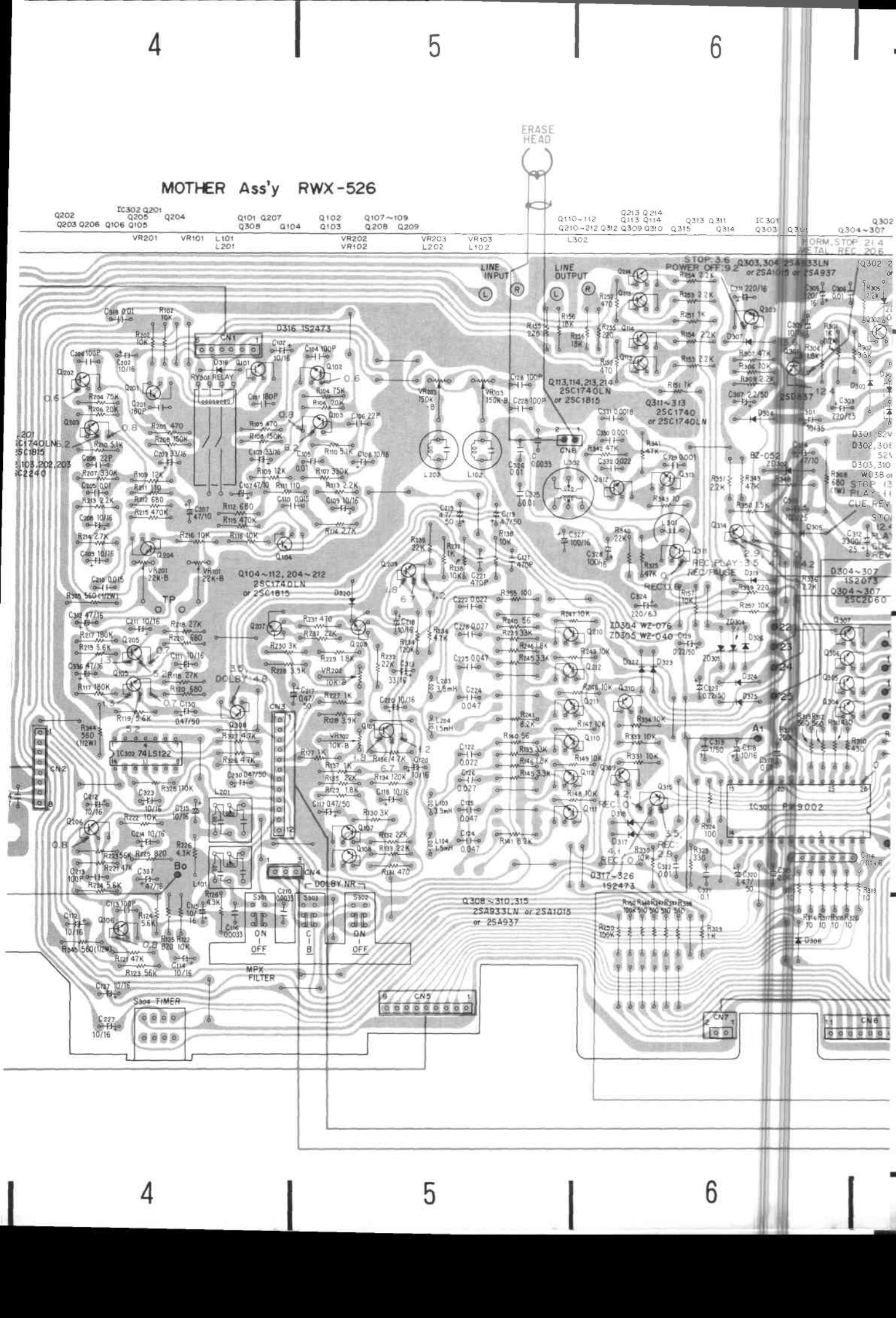

DOLBY Ass'y RWX-550
IC603 IC607 IC601 Q401 IC605
IC611 IC610 IC612 IC609 Q501 IC606 IC602 IC608 IC604
VR401 VR403 RO VR402 TP2 TP1 TP1 TP2 RO VR501~503
D403,405,407,503,505,507 1K34A or 1K60A or 0A90
D401,402,404,406,408 D501,502,504,506,508 1S2473
D601~608 1S2473
2SA933 or 2SA1015
NJM4558D
CN4


T1201
RED
RED
GRN
BLK
GRN
WHT
OR
AC 120V
60Hz
S1301
POWER
C1301 0.01
/ AC 250
SENSOR Ass'y
RTR1001
GP-411B
A2
A1
A0
D1001
10/16
R1001 200
R1002 1.5K
DETECTOR Ass'y
S13
S14
METAL
CrO2
HIGH
NORM
TAPE
SELECTOR
MOTOR
Ass'y
M
MS SOL.
PINCH
SOL.
REW SOL.
FF SOL.
S1201: ERASE
PREVENT DETECTOR
CN3
CN6
CN7
LED801~804
LED806
GL-9PG4
LED805,807
GL-9PR4
LED808,809
RAW-177
LED804
(CrO2)
LED803
(METAL)
LED806
(PAUSE)
LED805
(REC)
LED807
(REC MUTE)
INDICATOR Ass'y
RWX-528
IC801,802 BA6124


MOTHER Ass'y RWX-526
ERASE HEAD
LINE INPUT
LINE OUTPUT
D316 1S2473
Q104~112, 204~212 2SC1740LN or 2SC1815
Q113, 114, 213, 214 2SC1740LN or 2SC1815
Q311~313 2SC1740 or 2SC1740LN
Q308~310, 315 2SA933LN or 2SA1015 or 2SA937
D317~326 1S2473
D304~307 1S2073
Q304~307 2SC2060
ZD304 WZ-076
ZD305 WZ-040
IC302 74LS122
IC301 PW9002
CN1
CN2
CN3
CN4
CN5
CN6
CN7
CN8
S301 ON OFF
S302 ON OFF
S303 C B
MPX FILTER
S304 TIMER
DOLBY NR
VR201
VR101
VR202
VR102
VR203
VR103
L101
L201
L202
L102
L302
L301
L203
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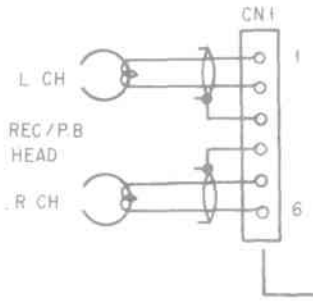
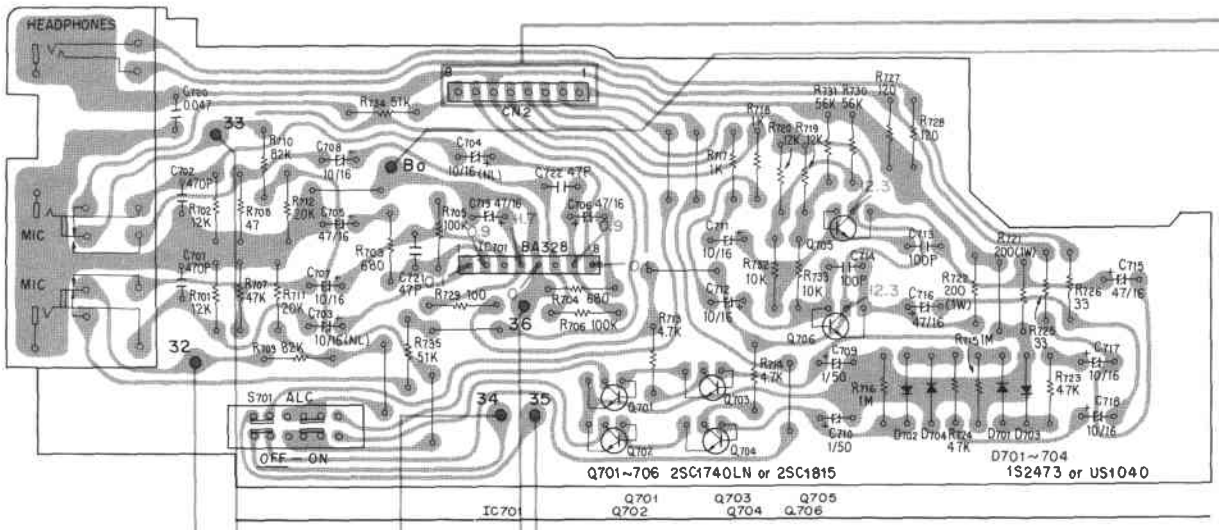
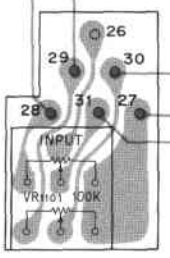
L401
L402
L403
L404
RY301 RELAY

8. P.C. BOARD CONNECTION DIAGRAM

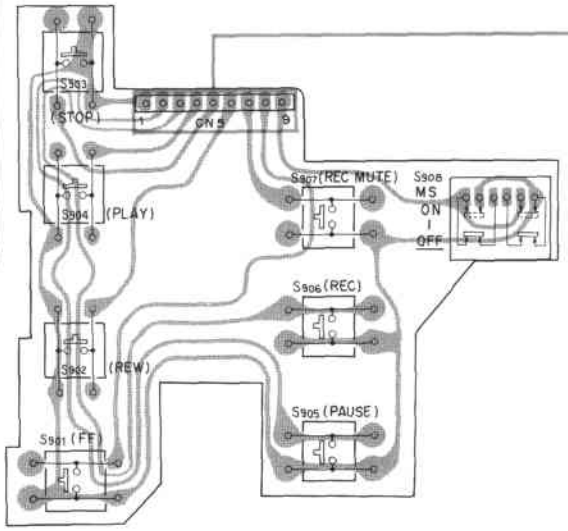


JACK Ass'y RWX-527





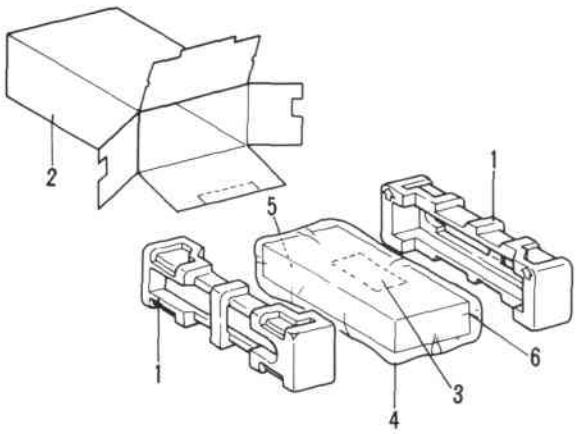
VOLUME Ass'y



FUNCTION SWITCH Ass'y

Mark	No.	Part No.	Description
	101.	PMZ20P130FMC	Screw
	102.	IMZ20Y120FMC	Screw
	103.	PMZ20P120FMC	Screw
	104.	YE20FUC	Washer
	105.	PMZ26P060FMC	Screw
	106.	VS20FBT	Washer
	107.	WA17D032D025	Washer
	108.	PMA26P040FMC	Screw
	109.	WA21D040D025	Washer
	110.	RBF-051	Washer
	111.	RBF-050	Washer
	112.	PMA26P040FMC	Screw

6. PACKING

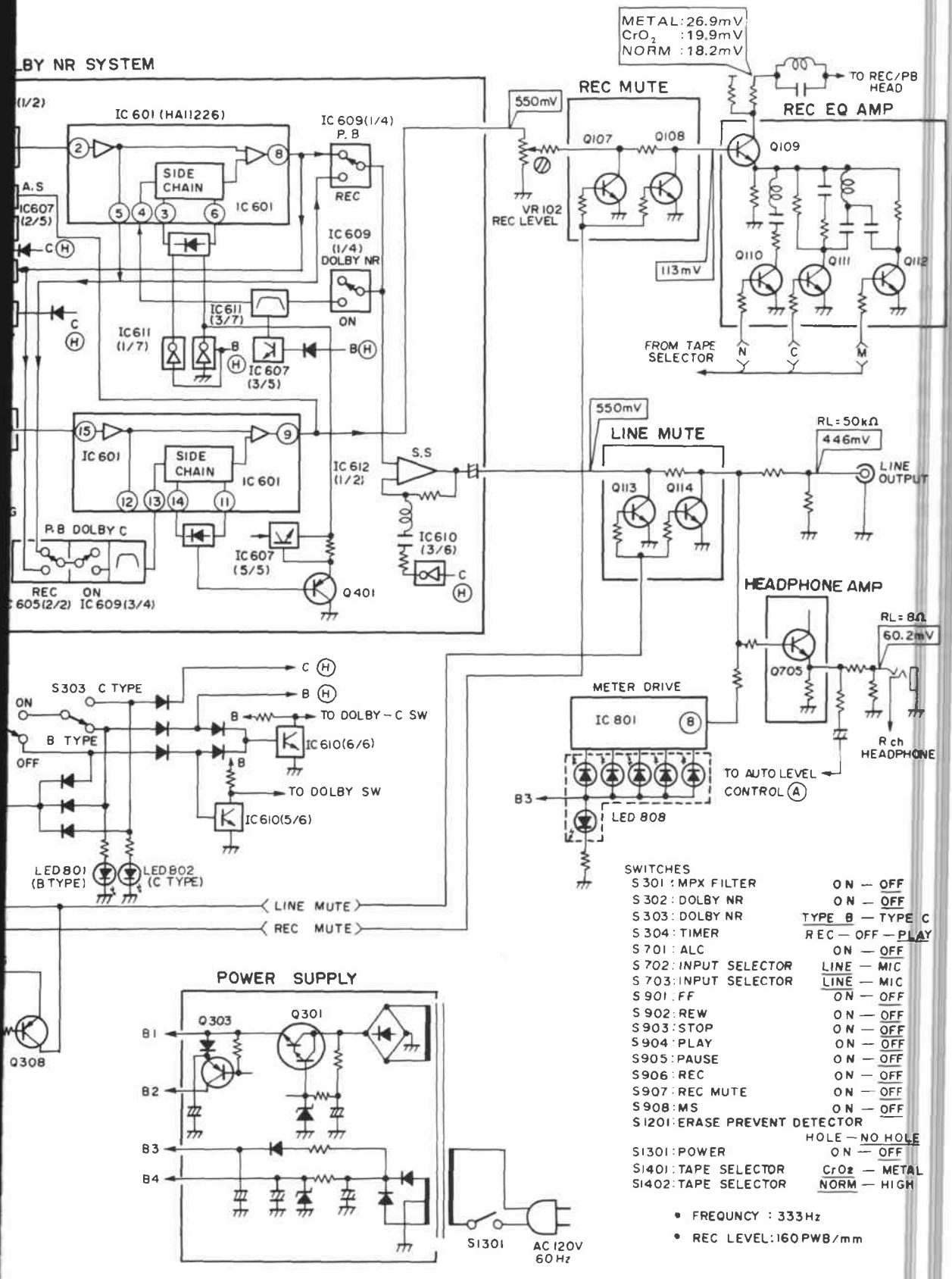


Parts List

Mark	No.	Part No.	Description
	1.	RHA-236	Pad
	2.	RHG-436	Packing case
	3.	RRB-151	Operating instructions
	4.	RHX-031	Sheet C
	5.	RHC-119	Polyethylene paper
	6.	RDE-010	Connection cord

Parts List

Mark	No.	Part No.	Description
	1.		Lock lever
	2.	RBH-820	Lock lever spring
	3.		Side arm L assembly
	4.	RBH-821	Eject spring
★★	5.	RSN-027 (RSN-010) (RSN-032)	Lever switch
	6.		Side plate L assembly
	7.	RNK-995	Cylinder
	8.	REB-323 (REB-447)	O ring
	9.	RNL-053	Piston
	10.	RBH-822	Connection rod
	11.	RBH-795	Earth spring
	12.	RNL-057	Pocket spring L
	13.	RXB-405	Pocket L assembly
	14.		Bush
	15.		Pocket L
	16.	RNK-994	Guide roller
	17.	.....	.....
	18.	RAH-392	Cassette plate
	19.	.....	.....
	20.	.....	.....
	21.		Pocket frame
	22.	RXB-600	Door assembly
⚠ ★	23.	RXP-092	Plunger solenoid P
	24.		REC prevent lever
	25.		Chassis assembly
	26.	RNF-895	Half spring
	27.	RBH-778	Spring
	28.	RNL-042	Half receptacle
★★	29.	REB-457	Counter belt
	30.	RNH-031	Spacer
	31.		Chrome detector lever
	32.	RBH-819	Chrome detector spring
	33.		Head base
	34.	RXB-359	Bearing holder assembly
	35.	RBH-779	Head base spring
	36.	.....	.....
	37.		Shaft stopper
	38.		MS plate
	39.	RBH-794	Head base drive spring
★	40.	RPB-096	Erase head
	41.	RNL-050	Sub head base
★★	42.	RPB-091	REC/PB head
	43.	RBH-723	Head adjust spring
★★	44.	RXB-495	Pinch arm assembly
	45.	RBH-760	Pinch pressure spring
	46.		Metal detector lever
	47.	RBH-818	Metal detector spring
	48.	RNL-049	Pocket R
	49.	RNL-058	Pocket spring R
⚠ ★	50.	RXP-101	Plunger solenoid R
	51.		Solenoid bracket L
	52.	RNL-047	Solenoid arm
	53.	RBH-727	Brake spring
⚠ ★	54.	RXP-100	Plunger solenoid F
	55.	RBH-722	Gear lever spring
	56.	RNL-051	Gear lever
	57.		Solenoid bracket R
★★	58.	REB-446	Drive belt
	59.	RXB-376	Drive arm full assembly
	60.	.....	.....
	61.	RBH-724	Idler pressure spring
	62.	RBH-725	FR spring
	63.	RXB-374	Idler arm assembly
	64.	RXB-378	Reel base assembly
	65.		Brake plate
★	66.	REB-187	Brake shoe
	67.	RNK-998	Idler gear
★★	68.	RXB-377	Supply reel base assembly
★★	69.	RNK-999	TU idler
★★	70.	RXB-360	TU reel base assembly
	71.	RNL-059	Cam gear
	72.	RXB-541	Lever assembly
	73.	RBH-744	Lever spring
	74.	RXM-076	Motor assembly
	75.		Motor
	76.		Motor pulley
	77.		Flywheel holder
	78.		Thrust receptacle
	79.	RXB-500	Flywheel assembly
★★	80.	REB-411	Capstan belt
	81.	RBH-721	Flywheel spring
⚠ ★	82.	RXP-099	PMS solenoid
	83.	REB-241	Door stopper
	84.		Side plate R assembly
	85.		Connection plate
	86.		Detector assembly
	87.	RSH-059	Slide switch
	88.		Mount plate
	89.		Side arm R assembly
	90.		Eject lever
	91.		Stopper lever
	92.	RLB-390	Stopper collar
	93.	YE30FUC	Washer
	94.	PMZ26P080FMC	Screw
	95.	VCZ26P060FMC	Screw
	96.	VCZ26P090FMC	Screw
	97.	ATZ26P060FZC	Screw
	98.	PMZ26P030FMC	Screw
	99.	YE40FUC	Washer
	100.	PCZ26P060FMC	Screw

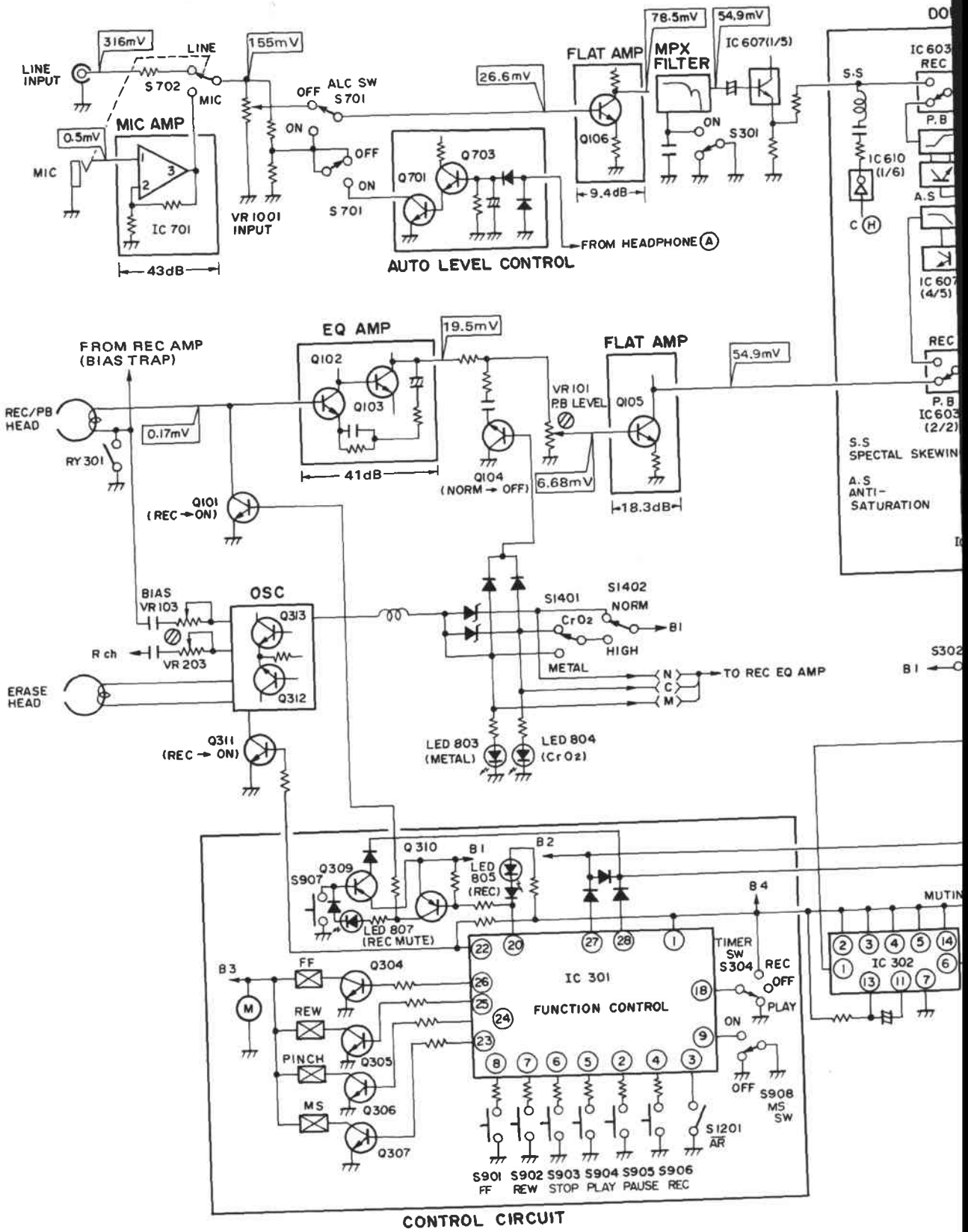


SWITCHES

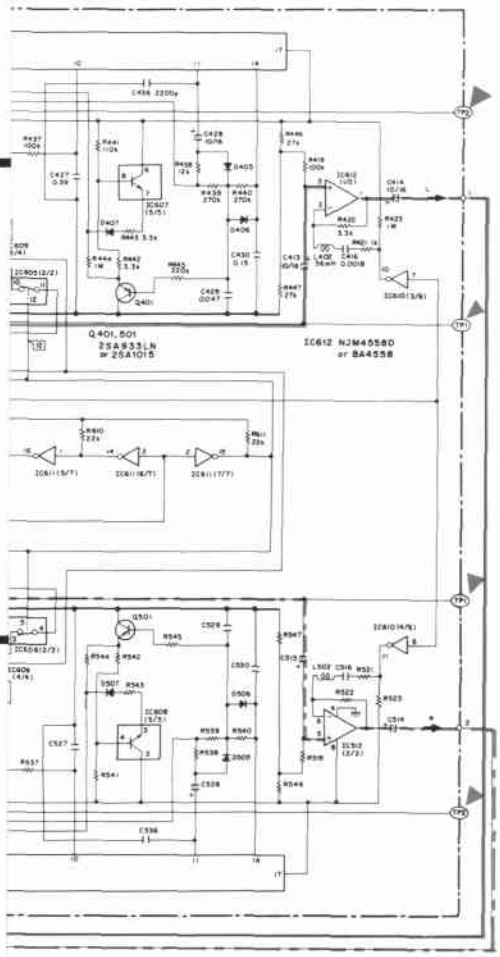
S 301 : MPX FILTER	ON — OFF
S 302 : DOLBY NR	ON — OFF
S 303 : DOLBY NR	TYPE B — TYPE C
S 304 : TIMER	REC — OFF — PLAY
S 701 : ALC	ON — OFF
S 702 : INPUT SELECTOR	LINE — MIC
S 703 : INPUT SELECTOR	LINE — MIC
S 901 : FF	ON — OFF
S 902 : REW	ON — OFF
S 903 : STOP	ON — OFF
S 904 : PLAY	ON — OFF
S 905 : PAUSE	ON — OFF
S 906 : REC	ON — OFF
S 907 : REC MUTE	ON — OFF
S 908 : MS	ON — OFF
S 1201 : ERASE PREVENT DETECTOR	HOLE — NO HOLE
S1301 : POWER	ON — OFF
S1401 : TAPE SELECTOR	CrO2 — METAL
S1402 : TAPE SELECTOR	NORM — HIGH

- FREQUNCY : 333Hz
- REC LEVEL: 160PWB/mm

7. BLOCK DIAGRAM



semiconductors are representative ones ternative semiconductors may be used and parts list.



1. RESISTORS:
Indicated in Ω, ¼W, ±5% tolerance unless otherwise noted k : kΩ, M : MΩ. (F) : ±1%, (G) : ±2%, (K) : ±10%, (M) : ±20% tolerance

2. CAPACITORS:
Indicated in capacity (μF)/voltage (V) unless otherwise noted p : pF
Indication without voltage is 50V except electrolytic capacitor

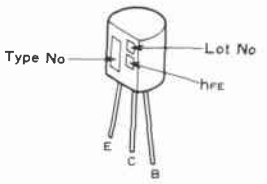
3. VOLTAGE
DC voltage (V) at no input signal

4. OTHERS
Signal route.
Adjusting point
The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.

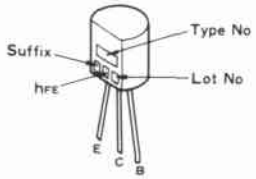
This is the basic schematic diagram, but the actual circuit may vary due to improvements in design.

External Appearance of Transistors and ICs

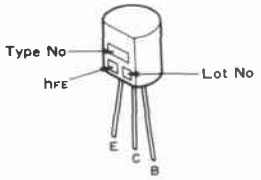
2SA1015
2SC1815
2SC2240



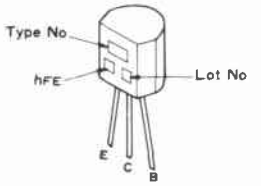
2SA933LN
2SC1740LN



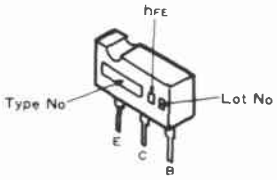
2SC1740
2SC2634
2SC2634NC
2SA1127NC



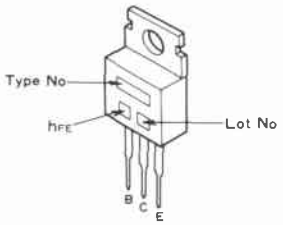
2SC2060



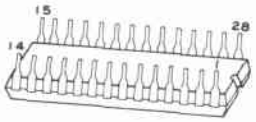
2SC2673



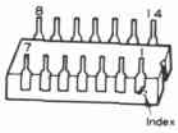
2SD837



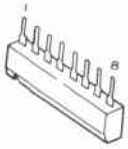
PM9002



TC4066BP
MB84066BM
HD14066B
HD74LS122
MB74LS122
SN74LS122



BA328



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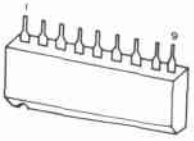
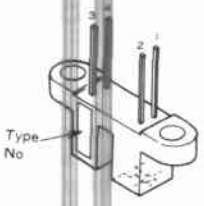
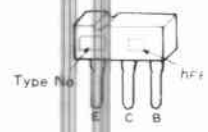


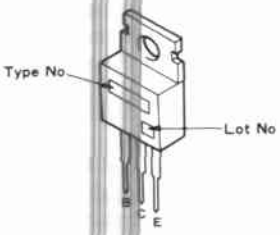
GP-411B



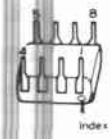
2SC2021
2SA937



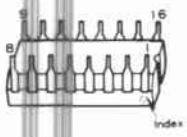
2SD686



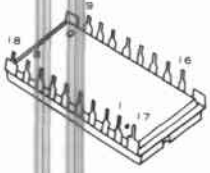
AN6552
NJM4558D
BA4558



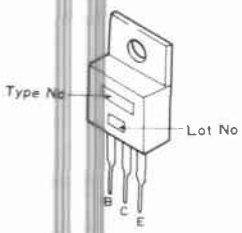
TD62504P
TD62507P



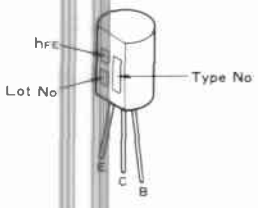
HA11226



2SD1031



2SC1383NC



RESISTORS

Note: When ordering resistors, convert the resistance value into code form, and then rewrite the part no. as before.

Mark	Part No.	Symbol & Descrption
	RD¼PM □□□ J	R701-R720, R723-R735
	RS1PF □□□ J	R721, R722

SEMICONDUCTORS

Mark	Part No.	Symbol & Descrption
★★	2SC1740LN (2SC2021) (2SC1815) (2SC2634)	Q701-Q704
★★	2SC2060 (2SC2673) (2SC1383NC)	Q705, Q706
★★	BA328	IC701
★	US1040 (1S2473)	D701-D704

OTHERS

Mark	Part No.	Symbol & Description
	RKN-075	Jack assembly

Dolby Assembly (RWX-550)

COILS

Mark	Part No.	Symbol & Description
	RTF-090	L402, L502 Coil (36mH)
	RTF-092	L401, L501 Coil (36mH)

CAPACITORS

Mark	Part No.	Symbol & Description
	CEA 100M 16	C401, C411, C413, C414, C421, C428, C432, C501, C511, C513, C514, C521, C528, C532, C601-C603
	CEA 010M 50	C406, C424, C506, C524
	CEA R33M 50	C419, C420, C519, C520
	CEA R10M 50	C409, C417, C418, C509, C517, C518
	CQMA 153J 50	C408, C412, C425, C426, C508, C512, C525, C526
	CQMA 104J 50	C410, C510
	CQMA 182J 50	C402, C416, C502, C516
	CQMA 473K 50	C405, C429, C505, C529
	CQMA 472K 50	C407, C423, C507, C523
	CQMA 183K 50	C431, C531
	CQMA 394K 50	C427, C527
	CCDHSL 221K 50	C404, C504
	CEA 471M 16	C433, C533
	CEA R47M 50	C403, C503
	CEA R15M 50	C430, C530
	CQMA 152K 50	C435, C535
	CKDYB 222K 50	C434, C436, C536

RESISTORS

Note: Whenordering resistors, convert the resistance value into code form, and then rewrite the part no. as before.

Mark	Part No.	Symbol & Description
★	RCP-189	VR401, VR403, VR501, VR503 Semi-fixed (2.2k-B)
★	RCP-193	VR402, VR502 Semi-fixed (10k-B)
	RD¼PM □□□ J	R401-R413, R415-R433, R435-R447, R501-R513, R515-R533, R535-R547, R601-R613

SEMICONDUCTORS

Mark	Part No.	Symbol & Description
★★	2SA933 (2SA1015) (2SA1127NC) (2SA937)	Q401, Q501
★★	HA11226	IC601, IC602
★★	NJM4558D (AN6552) (BA4558)	IC612
★★	TD62504P	IC610, IC611
★★	TD62507P	IC607, IC608
★★	TC4066BP (MB84066BM) (HD14066B)	IC603-IC606, IC609
★	1S2473 (US1040)	D401, D402, D404, D406, D408, D501, D502, D504, D506, D508, D601-D608
★	1K34A (1K60A) (0A90)	D403, D405, D407

OTHERS

Mark	Part No.	Symbol & Description
	RKP-446	Connector assembly 12P
	RKP-346	Connector assembly 3P

Indicator Assembly (RWX-528)

CAPACITORS

Mark	Part No.	Symbol & Description
	CEA 100M 16	C801, C802

RESISTORS

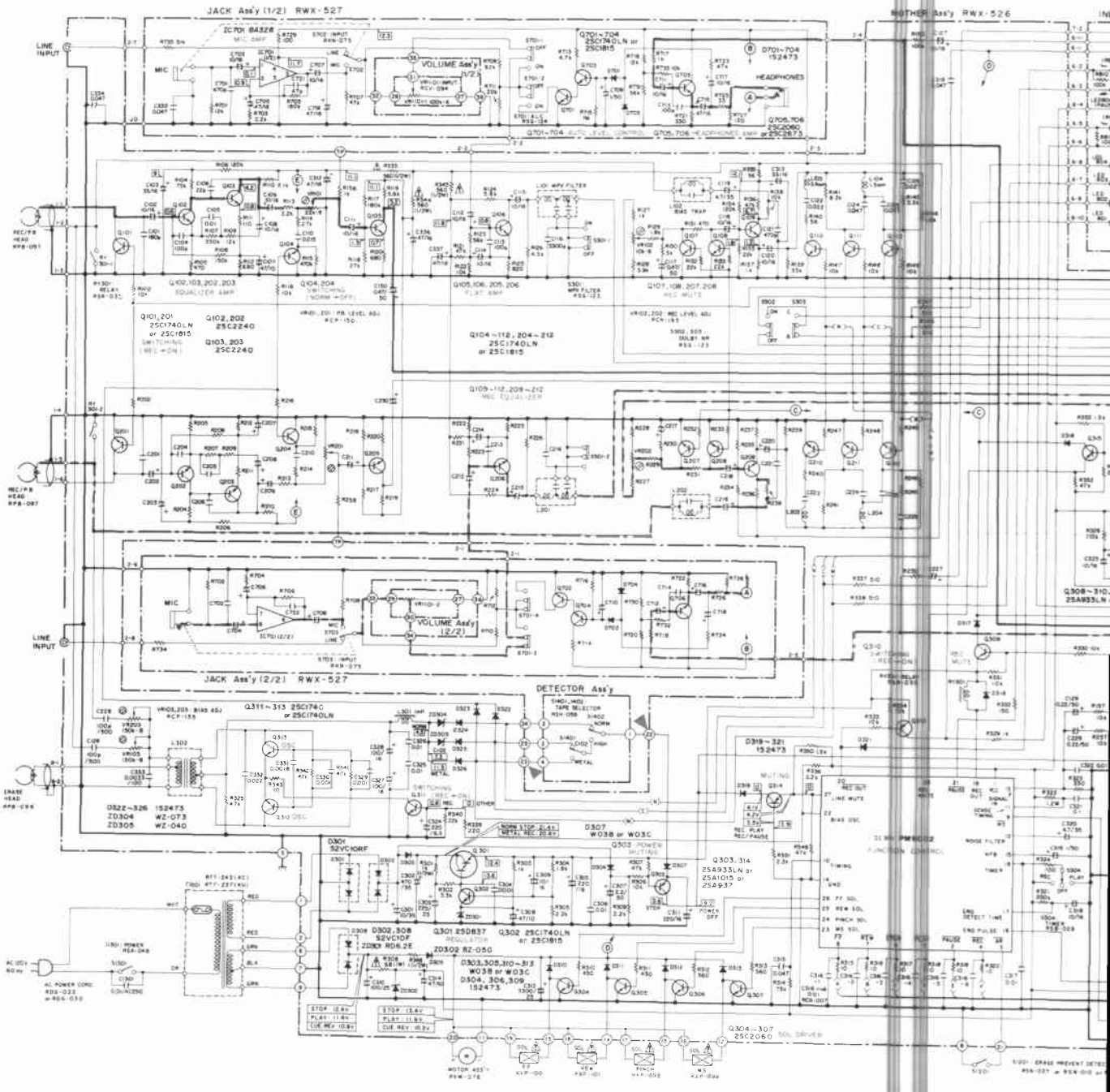
Note: When ordering resistors, convert the resistance value into code form, and then rewrite the part no. as before.

Mark	Part No.	Symbol & Description
	RD¼PM □□□ J	R801-R804, R806-R808, R810, R811
	RD½PSF □□□ J	R805, R809

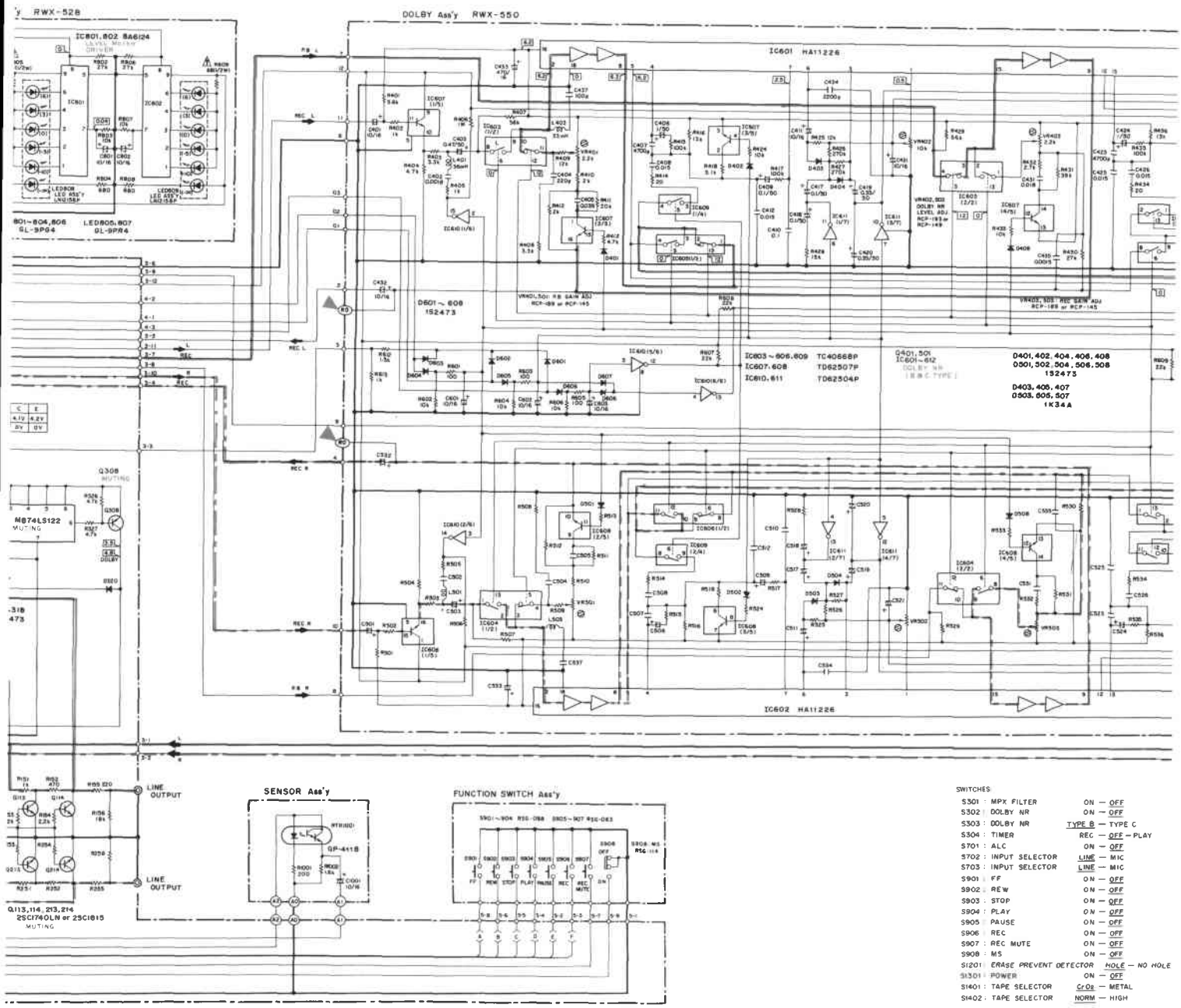
SEMICONDUCTORS

Mark	Part No.	Symbol & Description
★★	BA6124	IC801, IC802
★	GL-9PG4	LED801-LED804, LED806
★	GL-9PR4	LED805, LED807
★	LN12158P	LED808-LED819 LED array

9. SCHEMATIC DIAGRAM



NOTE:
The indicated
only. Other al
are listed in the



SWITCHES:

S301 :	MPX FILTER	ON — OFF
S302 :	DOLBY NR	ON — OFF
S303 :	DOLBY NR	TYPE B — TYPE C
S304 :	TIMER	REC — OFF — PLAY
S701 :	ALC	ON — OFF
S702 :	INPUT SELECTOR	LINE — MIC
S703 :	INPUT SELECTOR	LINE — MIC
S901 :	FF	ON — OFF
S902 :	REW	ON — OFF
S903 :	STOP	ON — OFF
S904 :	PLAY	ON — OFF
S905 :	PAUSE	ON — OFF
S906 :	REC	ON — OFF
S907 :	REC MUTE	ON — OFF
S908 :	MS	ON — OFF
S1201 :	ERASE PREVENT DETECTOR	HOLE — NO HOLE
S1301 :	POWER	ON — OFF
S1401 :	TAPE SELECTOR	CrO2 — METAL
S1402 :	TAPE SELECTOR	NORM — HIGH

The underlined indicates the switch position.

NOTE;
Play back signal route ————
Recording signal route —— – ——

10. PARTS LIST

NOTES:

- *When ordering resistors, first convert resistance values into code form as shown in the following examples.*

  Ex. 1 When there are 2 effective digits (any digit apart from 0), such as 560 ohm and 47k ohm (tolerance is shown by J = 5%, and K = 10%).

560Ω	*56 x 10¹*	*561*	*RD¼PS 5 6 1 J*
47kΩ	*47 x 10³*	*473*	*RD¼PS 4 7 3 J*
0.5Ω	*0R5*		*RN2H 0 R 5 K*
1Ω	*010*		*RS1P 0 1 0 K*

  Ex. 2 When there are 3 effective digits (such as in high precision metal film resistors).

5.62kΩ	*562 x 100*	*5621*	*RN¼SR 5 6 2 1 F*

- *The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.*
- *For your Parts Stock Control, the fast moving items are indicated with the marks ★★ and ★.*
  ★★: GENERALLY MOVES FASTER THAN ★.
  This classification shall be adjusted by each distributor because it depends on model number , temperature, humidity, etc.

Miscellaneous Parts

P.C. BOARD ASSEMBLIES

Mark	Part No.	Symbol & Description
	RWX-528	Indicator assembly
	RWX-526	Mother assembly
		Sensor assembly
		Volume assembly
		Function switch assembly
	RWX-527	Jack assembly
	RWX-550	Dolby switch assembly
		Detector assembly

OTHERS

Mark	Part No.	Symbol & Description
⚠ ★	RTT-237	Power transformer (120V)
⚠	RDG-022	AC cord
⚠	(RDG-030)	
⚠ ★	RXP-092	Plunger solenoid P
⚠ ★	RXP-100	Plunger solenoid F
⚠ ★	RXP-101	Plunger solenoid R
	RXM-076	Motor assembly
★★	RPB-096	Erase head
★	RPB-097	REC/PB head

Mother Assembly (RWX-526)

SWITCH AND COILS

Mark	Part No.	Symbol & Description	
★★	RSB-028	S304	Rotary switch
	RTF-089	L101, L201	MPX filter coil
	RTF-084	L102, L202	Trap coil
	RTF-085	L103, L203	Peaking coil (3.9mH)
	RTF-086	L104, L204	Peaking coil (1.5mH)
	RTF-057	L301	Line coil
	RTD-026	L302	OSC coil

CAPACITORS

Mark	Part No.	Symbol & Description
	CCDSL 181K 50	C101, C201
	CEANL 100M 16	C102, C202
	CEA R22M 50	C129, C229
	CEA R47M 50	C117, C217, C130, C230
	CEA 010M 50	C319
	CEA 4R7M 50	C119, C219, C320
	CEA 100M 16	C108, C109, C111, C112, C114, C115, C118, C120, C127, C208, C209, C211, C212, C214, C215, C218, C220, C227, C309, C318, C323
	CEA 100M 35	C301
	CEA 470M 10	C308
	CEA 330M 16	C103, C203, C313
	CEA 470M 16	C312, C336, C337
	CEA 470M 10	C107, C207, C314
	CEA 101M 25	C310
	CEA 101M 16	C327, C328
	CEA 221M 25	C303
	CEA 221M 6.3	C324
	CEA 221M 16	C305, C311
	CEA 471M 35	C302
	CEA 332M 25	C312
	CQMA 103J 50	C105, C205
	CQMA 153J 50	C110, C210
	CQMA 223J 50	C122, C222
	CQMA 473J 50	C124, C125, C224, C225, C315
	CQMA 182K 50	C331
	CQMA 103K 50	C322
	CEA 2R2M 50	C307
	CQMA 104J 50	C321
	CQMA 102K 50	C329, C330
	CQMA 332K 50	C116, C216
	CQMA 273J 50	C126, C226

Mark	Part No.	Symbol & Description
	CQMA 223K 50	C332
	CQPA 332J 100	C333
	CCDSL 220K 50	C106, C206
	CCDSL 101K 50	C104, C113, C204, C213
	CCDSL 101K 500	C128, C228
	CCDSL 471K 50	C121, C221
	CKDYF 103Z 50	C306, C317, C318, C325, C326
	CKDYF 473Z 50	C335, C334
	CKDYF 102Z 50	C304
	RCG-007	C316 Capacitor array

RESISTORS

Note: When ordering resistors, convert the resistance value into code form, and then rewrite the part no. as before.

Mark	Part No.	Symbol & Description
★	RCP-150 (RCP-195)	VR101, VR201 Semi-fixed (22k-B)
★	RCP-193 (RCP-149)	VR102, VR202 Semi-fixed (10k-B)
★	RCP-155 (RCP-200)	VR103, VR203 Semi-fixed (150k-B)
	RD¼PM□□□J	R102, R104-R157, R202, R204-R257, R302-R307, R309-R334, R336-R343, R346, R347, R349-R355
	RD½PSF□□□J	R301, R348
⚠	RD½PSF□□□J	R335, R344, R345
⚠	RS1PF□□□J	R308

SEMICONDUCTORS

Mark	Part No.	Symbol & Description
★★	2SC1740LN (2SC1815) (2SC2021LN) (2SC2634NC)	Q101, Q104-Q114, Q201, Q204-Q214, Q302
★★	2SC2240	Q102, Q103, Q202, Q203
★★	2SC1740-S (2SC1740LN-S)	Q311-Q313
★★	2SA933LN (2SA1015) (2SA937) (2SA1127NC)	Q303, Q308-Q310, Q314, Q315
★★	2SC2060 (2SC2673) (2SC1383NC)	Q304-Q307
★★	2SD837 (2SD1031) (2SD686)	Q301
★★	PM9002	IC301
★★	MB74LS122 (HD74LS122) (SN74LS122)	IC302
★	S2VC10RF	D301
★	S2VC10F	D302, D308
★	W03B (W03C)	D303, D305, D307, D310-D313
★	1S2473 (US1040)	D304, D316-D326, D306
★	RD6.2E (WZ-061) (02Z6.2A)	ZD301
★	BZ-050 (RD5.1FB1)	ZD302
★	WZ-073	ZD304
★	WZ-040	ZD305

OTHERS

Mark	Part No.	Symbol & Description
	RKB-018	Terminal (LINE)
★★	RSG-123	S301-S303 Push switch assembly
★★	RSR-035	RY301 Lead relay
	M15-414	14□ Shield case

Sensor Assembly

Mark	Part No.	Symbol & Description
★	GP-411B	Photo interrupter
	RD¼PM 201J	R1001
	RD¼PM 162J	R1002
	CEA 100M 16	C1001

Volume Assembly

Mark	Part No.	Symbol & Description
★	RCV-094	VR1101 Volume (INPUT)

Function Switch Assembly

Mark	Part No.	Symbol & Description
★★	RSG-088	S901-S904 Push switch
★★	RSG-063	S905-R907 Function switch
★★	RSG-114	S908 Push switch

Jack Assembly (RWX-527)

SWITCH

Mark	Part No.	Symbol & Description
★★	RSG-124	S701 Push switch

CAPACITORS

Mark	Part No.	Symbol & Description
	CKDYB 471K 50	C701, C702
	CCDSL 101K 50	C713, C714
	CEANL 100M 16	C703, C704
	CEA 010M 50	C709, C710
	CEA 100M 16	C707, C708, C711, C712, C717, C718
	CEA 470M 16	C705, C706, C715, C716, C719
	CCDSL 470K 50	C721, C722
	CKDYF 473Z 50	C720

11. RÉGLAGES MÉCANIQUES

Avant de procéder au réglage

Nettoyer les deux supports de bobine, le cabestan et le galet presseur à l'aide d'un bâtonnet imbibé d'alcool.

11.1 RÉGLAGE DE LA FORCE D'APPUI DU GALET PRESSEUR

1. Mettre la platine en mode de lecture.
2. Appuyer doucement sur le bras du galet presseur à l'aide d'une jauge de pression et séparer légèrement le galet presseur du cabestan.
3. Laisser ensuite revenir le galet presseur sur le cabestan et lire la valeur lorsque le galet presseur commence à tourner. Si la valeur lue ne se situe pas entre 350g et 550g, remplacer le ressort du galet presseur.

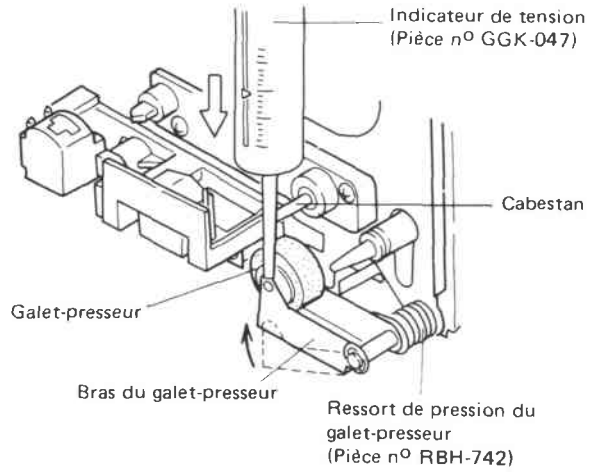


Fig. 11-1 Réglage de la pression du galet-presseur

11.2 RÉGLAGE DU COUPLE DU SUPPORT DE BOBINE

Mesurer le couple à l'aide d'un dynamomètre dans les modes de lecture, d'avance rapide (FF) et de rebobinage (REW). Les valeurs mesurées doivent normalement se situer dans les limites admissibles données au tableau 1.

Si les valeurs mesurées se trouvent en dehors des plages indiquées, remplacer l'ensemble support de bobine TU (réception) et/ou l'ensemble support de bobine débiteur, la poulie libre TU ou l'ensemble complet du bras d'entraînement.

Tableau 1

	Support de bobine TU	Support de bobine débitrice
Mode de lecture	35 à 55g.cm	• 2 à 5g.cm
Mode FF	75 à 110g.cm	• 2 à 5g.cm
Mode REW	• 2 à 5g.cm	75 à 110g.cm

• *Couple de tension inverse*

11.3 RÉGLAGE DE LA VITESSE DE DÉFILEMENT DE LA BANDE

1. Raccorder le fréquencemètre aux bornes de sortie LINE OUTPUT.
2. Reproduire la partie à 3kHz de la bande d'essai STD-301. Au début, la fréquence doit se situer dans la plage de 2995Hz à 3010Hz, et elle peut être réglée en tournant la résistance ajustable située dans le trou de réglage du moteur-cabestan, comme indiqué à la figure 11-2.

La vitesse de défilement de la bande augmente lorsque la résistance ajustable est tournée dans le sens des aiguilles d'une montre, et elle décroît lorsque l'on tourne la résistance en sens inverse.

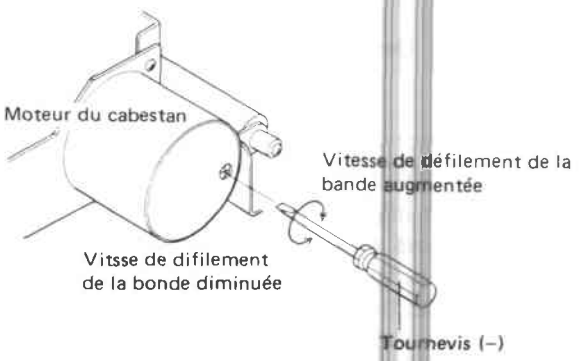


Fig. 11-2 Réglage de la vitesse de défilement de la bande

11.4 RÉGLAGE DU CONTACT DE DÉTECTION D'ENREGISTREMENT

Régler l'ergot (➡) indiqué par une flèche sur la figure 11-3 sur une position telle que si une cassette possédant une languette de protection contre l'effacement accidentel est chargée dans le logement, le contact à levier soit enclenché (ON), et que si une cassette démunie de cette languette de protection est chargée, le contact soit déclenché (OFF).

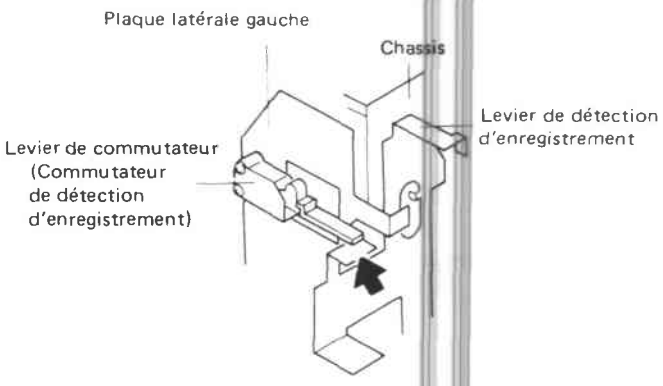


Fig. 11-3 Réglage du commutateur de détection d'enregistrement

11.5 RÉGLAGE DE L'ENSEMBLE DE DÉTECTION

Desserrer la vis ❶ et régler la position de montage de l'ensemble de détection de manière à ce que lorsqu'une cassette de type "NORMAL" est chargée dans le logement le contact à curseur soit déclenché (OFF), et que lorsqu'une cassette de type "METAL" est chargée, le contact à curseur soit enclenché (ON).

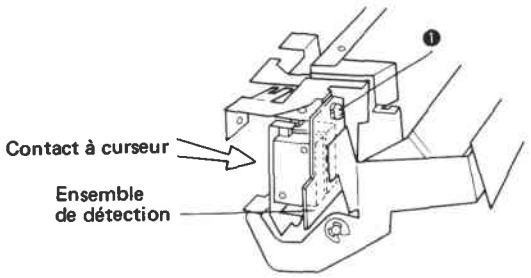


Fig. 11-4 Réglage de l'ensemble de détection

11.6 RÉGLAGE DE L'ÉLECTRO-AIMANT D'AVANCE RAPIDE (FF)

1. Mettre la platine en mode d'avance rapide (FF).
2. Desserrer la vis ❶ et régler la position de montage de l'électro-aimant d'avance rapide (FF) de manière à ce que le trou carré de l'ensemble support de bobine soit de niveau avec la bosse de l'ensemble du bras d'entraînement (c'est-à-dire avec un écart zéro), comme indiqué sur la figure 11-5.

11.7 RÉGLAGE DE L'ÉLECTRO-AIMANT DE REBOBINAGE (REW)

1. Mettre la platine en mode de rebobinage (REW).
2. Desserrer la vis ❷ et régler la position de montage de l'électro-aimant de rebobinage (REW) de manière à ce que le trou carré de l'ensemble support de bobine soit de niveau avec la bosse de l'ensemble du bras d'entraînement (c'est-à-dire avec un écart zéro), comme indiqué sur la figure 11-5.

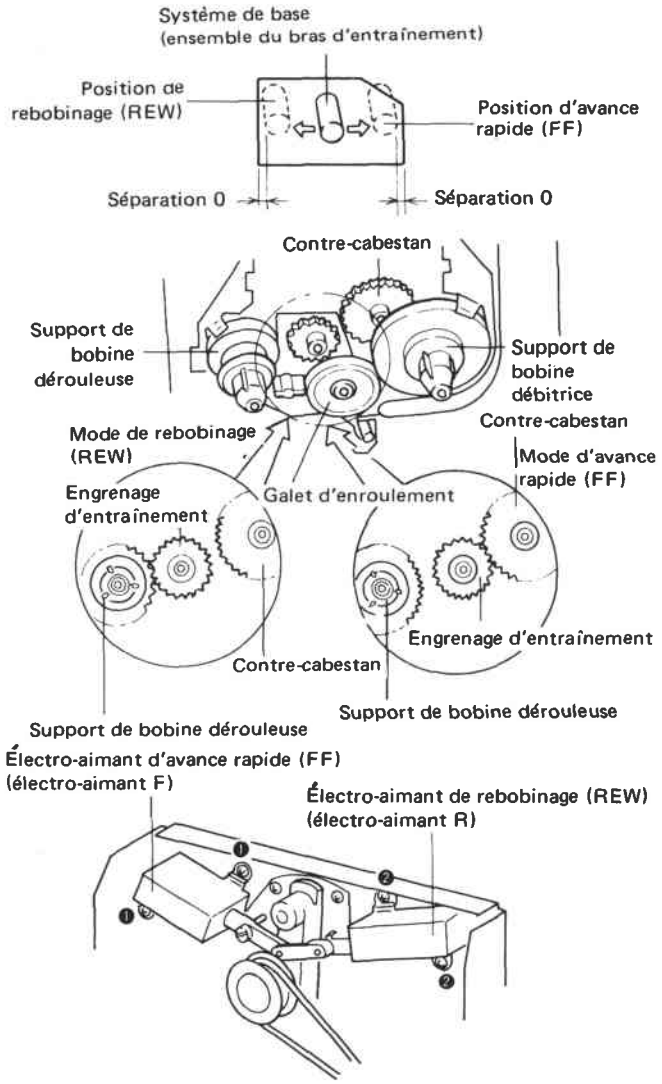


Fig. 11-5 Réglage de l'électro-aimant d'avance rapide et de rebobinage

11. MECHANICAL ADJUSTMENTS

Prior to adjustment

Clean the both reel base, the capstan and the pinch roller with an alcohol moistened swab.

11.1 PINCH ROLLER PRESSURE ADJUSTMENT

1. Put the tape deck into the playback mode.
2. Gently push against the pinch roller arm with the tension gauge and separate the pinch roller slightly from the capstan.
3. Then the pinch roller back onto the capstan, and read the value when the pinch roller starts to rotate. If the reading fails to lie within 350g ~ 550g, replace the pinch pressure spring.

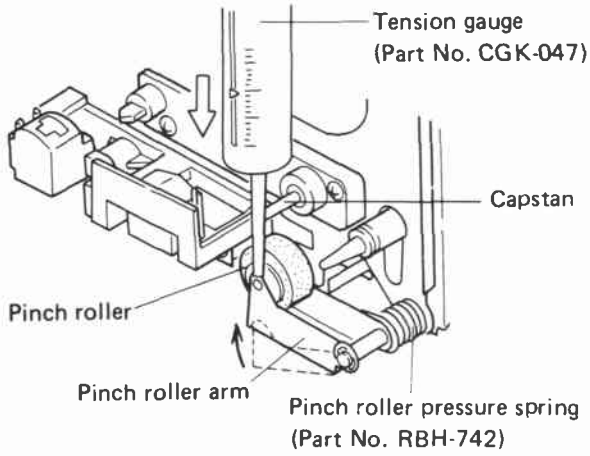


Fig. 11-1 Pinch roller pressure adjustment

11.2 REEL BASE TORQUE ADJUSTMENT

Measure the torque with the torque meter during playback, fast forward (FF) and rewind (REW) modes. The measured values should normally lie within the allowable ranges listed in the table 1.

If the measured values lie outside the relevant ranges, replace the TU (take-up) reel base assembly and/or supply reel base assembly, TU idler, or drive arm full assembly.

Table 1

	TU reel base	Supply reel base
Playback mode	35 – 55g.cm	* 2 – 5g.cm
FF mode	75 – 110g.cm	* 2 – 5g.cm
REW mode	* 2 – 5g.cm	75 – 110g.cm

** Do notes back tension torque*

11.3 TAPE SPEED ADJUSTMENT

1. Connect the frequency counter to the LINE OUTPUT terminals.
2. Play back the 3kHz portion of the STD-301 test tape. At the beginning, the frequency should be lie within the 2995Hz ~ 3010Hz range, and may be adjusted by turning the semi-fixed resistor located in the capstan motor adjustment hole as shown in Fig. 11-2.

Tape speed is increased by turning the semi-fixed resistor clockwise, and decreased by turning counter-clockwise.

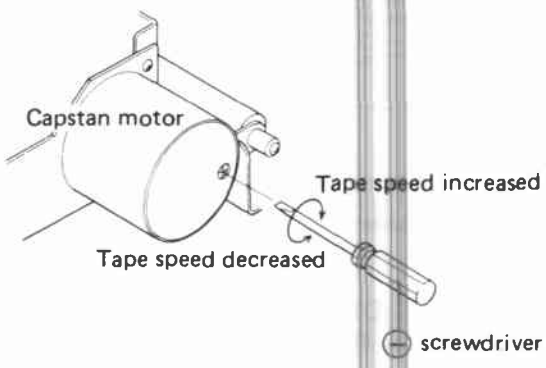


Fig. 11-2 Tape speed adjustment

11.4 REC DETECTOR SWITCH ADJUSTMENT

Adjust the tange (➡) shown in Fig. 11-3 by the arrow to a position where when a cassette with an erase prevention detector is loaded into the holder, the lever switch is ON, and when a cassette without the detector is loaded, the switch is OFF.

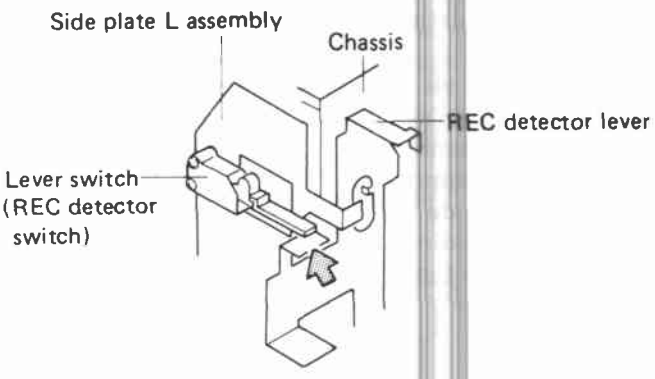


Fig. 11-3 REC detector switch adjustment

11.5 DETECTOR ASSEMBLY ADJUSTMENT

Loosen screw ❶ and adjust the detector assembly mounting position when the NORMAL cassette tape is loaded into the holder, the slide switch OFF, and the METAL cassette tape is loaded, the slide switch is ON.

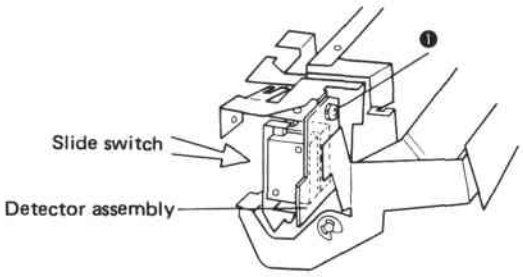


Fig. 11-4 Detector assembly adjustment

11.6 FF SOLENOID ADJUSTMENT

1. Put the deck into FF mode.
2. Loosen screws ❶ and adjust the FF solenoid mounting position so that the square hole of the reel base full assembly is flush against the boss of the driving arm full assembly (i.e. 0 separation) as shown in Fig. 11-4.

11.7 REW SOLENOID ADJUSTMENT

1. Put the deck into REW mode.
2. Loosen screw ❷ and adjust the REW solenoid mounting position so that the square hole of the reel base full assembly is flush against the boss of the driving arm full assembly (i.e. 0 separation) as shown in Fig. 11-4.

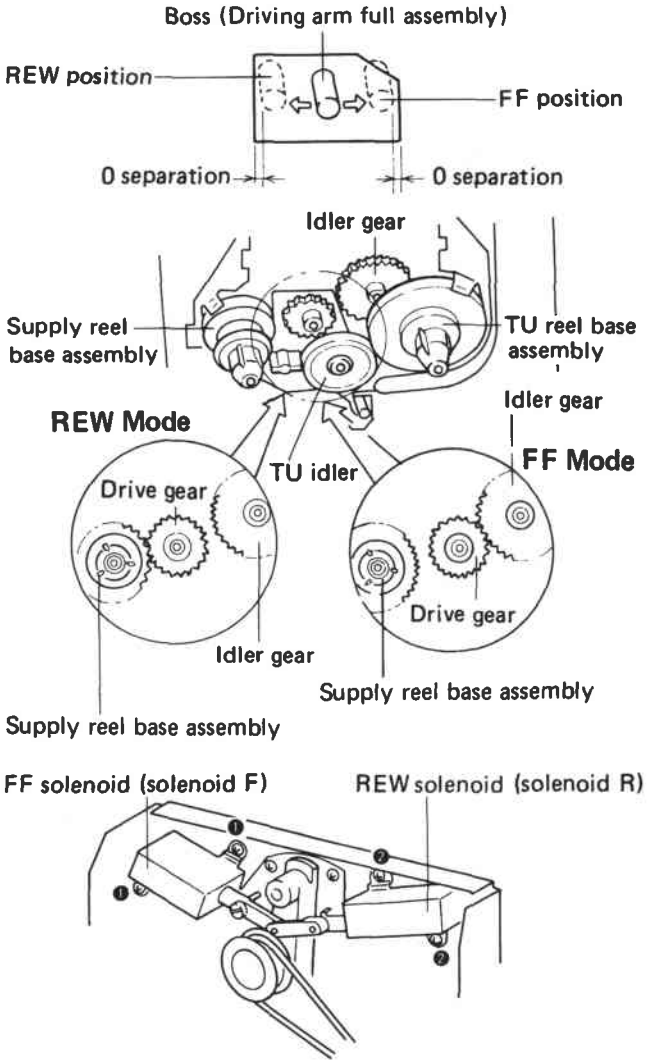


Fig. 11-5 FF (REW) solenoid adjustment

12. ELECTRICAL ADJUSTMENTS

Precaution

1. Mechanical adjustment should be completed.
2. Clean the following parts with an alcohol moistened swab: Record/Playback head, Pinch roller, Erase head, Rubber belts and Capstan.
3. Demagnetize record/playback head with a head demagnetizer.
4. Do not use magnetized screwdriver for adjustments.
5. Adjustments and measurements should be performed for both L ch and R ch with rated power supply voltage.
6. Adjustments should be performed in the order given in this service manual. Altering the order can hinder proper adjustments, resulting in loss of performance.
7. Level during measurements are based on 0dBv = 1V. Connect a 50kΩ (47 — 52kΩ) dummy resistor across the OUTPUT terminals.
8. Let the CT-5 warm up (aging) for a few minutes before proceeding with the adjustment.
9. Set the DOLBY NR switch to OFF and TAPE SELECTOR to the NORM position unless directed otherwise.

Test Equipments/Tools Required:

1. Test tape
   STD-341A ..... For playback adjustment
   STD-608A ..... NORMAL blank tape
   STD-603 ..... CrO_2 blank tape
   STD-604 ..... METAL blank tape
2. Audio oscillator
3. AC millivoltmeter (AC mV)
4. Attenuator
5. Oscilloscope
6. Resistor 50kΩ (47 — 52kΩ)

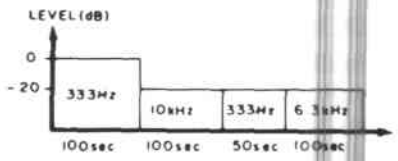


Fig. 12.1 Contents of the test tape STD-341A

12.1 DOLBY NR ADJUSTMENT

Setting

Mode ..... Record
Input Signal ..... 700Hz, −10dBv (316mV) to LINE INPUT
AC mV meter 1 ..... TP1 (Lch, Rch) of the Dolby assembly
AC mV meter 2 ..... TP2 (Lch, Rch) of the Dolby assembly

Since the left and right channels are identical, numbering of the TP terminals of the Dolby assembly is applied to both channels. When adjustment, please refer to Fig. 12-9.

Procedure

1. Adjust the INPUT level control so that the AC mV meter 1 reads −2.2dBv (776mV).
2. Adjust the VR403 (Lch) and VR503 (Rch) so that the AC mV meter 2 reads −2.2dBv (776mV).
3. Next set the CT-5 to the playback mode and apply the input signal (700Hz, −10dBv; 316mV) to the TP1 (Lch) and TP2 (Rch) of the mother assembly.
4. Adjust the attenuator so that the AC mV meter 2 reads −2.2dBv (776mV) and then adjust the VR401 (Lch) and VR501 (Rch) so that the AC mV meter 1 reads −2.2dBv (776mV).
5. Apply the input signal (700Hz, −10dBv; 316mV) to LINE INPUT.
6. Set the CT-5 to the record mode and connect the AC mV meter to the R.O. (REC OUT) terminal of the Dolby assembly. Adjust the INPUT level control so that the AC mV meter reads −32.6dBv (23.4mV).
7. Set the DOLBY NR switch to ON (C type) position and adjust the attenuator so that the AC mV meter 1 reads −32.6dBv (23.4mV) and then adjust the VR402 (Lch) and VR502 (Rch) so that the AC mV meter 2 reads −21.6dBv (83.1mV).

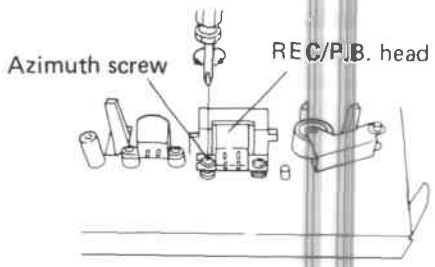


Fig. 12-2 Head azimuth adjustment

12.2 HEAD AZIMUTH ADJUSTMENT

Setting

Mode ..... Playback
Test Tape ..... STD-341A (10kHz, - 20dB)
AC mV meter ..... LINE OUTPUT
VR101, VR201 ..... Turn up to maximum position

Procedure

Adjust the azimuth adjusting screw for maximum AC mV meter readings for both L and R channels. After this adjustment, lock the screw with **screw lock**.

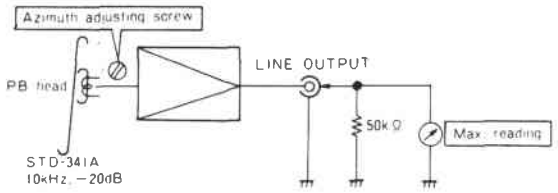


Fig. 12-3 Head azimuth adjustment

12.3 PLAYBACK EQUALIZER ADJUSTMENT

Setting

Mode ..... Playback
Test Tape ..... STD-341A (333Hz and 6.3kHz, - 20dB)
AC mV meter ..... LINE OUTPUT

Procedure

1. Play back the 333Hz and 6.3kHz portions of the STD-341A, and check that difference between the two output levels does not exceed 1.5dB±2dB.
2. Connect the terminal No.22 with No.23 of the mother assembly.
   Play back the 333Hz and 6.3kHz portions again, and check that the difference between the two output levels does not exceed −2.5dB±2dB.

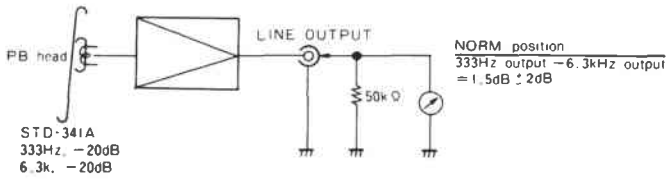


Fig. 12-4 Playback equalizer check

12.4 PLAYBACK LEVEL ADJUSTMENT

Since this adjustment determines the DOLBY NR level during playback, it should be performed precisely.

Setting

Mode ..... Playback
Test Tape STD-341A (333Hz, 0dB)
AC mV meter ..... TP1 (L ch) and TP1 (R ch) of the DOLBY assembly

Procedure

Adjust the VR101 (L ch) and VR201 (R ch) so that the AC mV meter reads - 1.2 dBv (0.87V).

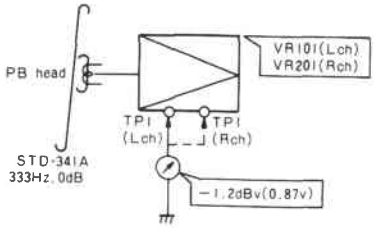


Fig. 12-5 Playback level adjustment

12.5 OVERALL FREQUENCY RESPONSE ADJUSTMENT

Setting

Mode ..... Record
Test Tape STD-608A, STD-603, STD-604
AC mV meter ..... LINE OUTPUT
Input Signal ..... 333Hz, −30dBv (31mV) to LINE INPUT

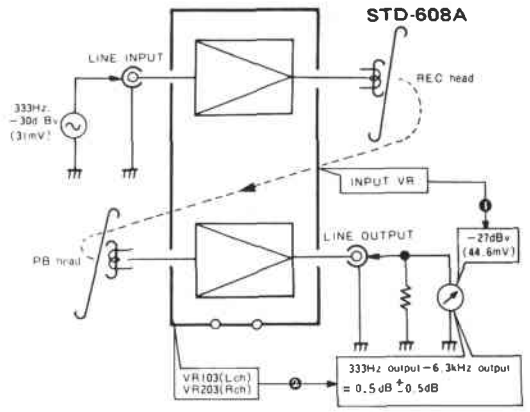


Fig. 12-6 Overall frequency response adjustment

11. AJUSTES MECÁNICOS

Antes del ajuste

Limpiar ambas bases de los carretes, eje de arrastre y rodillo de presión con algodón humedecido en alcohol.

11.1 AJUSTE DE LA PRESIÓN DEL RODILLO DE PRESIÓN

1. Establecer el magnetófono en el modo de reproducción.
2. Con el calibrador de tensión presionar ligeramente contra el brazo del rodillo de presión y separar un poco dicho rodillo del eje de arrastre.
3. Luego reposicionar el rodillo de presión sobre el eje de arrastre, y leer el valor en el momento en que el rodillo de presión empieza a girar. Si la indicación cae dentro de 350g ~ 550g, reemplazar el muelle del rodillo de presión.

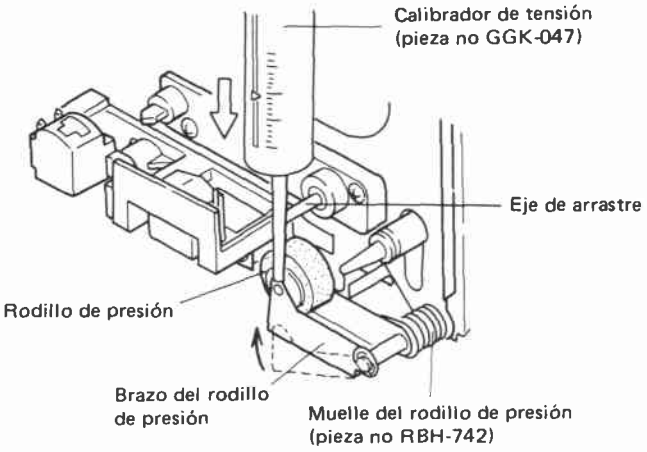


Fig. 11-1 Ajuste de la presión del rodillo de presión

11.2 AJUSTE DE LA TORSIÓN DE LA BASE DEL CARRETE

Utilizar el modidor de torsión para medir la torsión durante las funciones de reproducción, avance rápido (FF) y rebobinado (REW). Los valores medidos deberán estar normalmente dentro de los límites permisibles enumerados en la tabla 1.

Si los valores medidos no están dentro de tales límites, reemplazar el conjunto de la base del carrete de arrastre (TU) y/o conjunto de la base del carrete de suministro, rueda de guía TU, o todo el conjunto del brazo de arrastre.

Tabla 1

	Base del carrete TU	Base del carrete de suministro
Modo de reproducción	35 – 55g.cm	• 2 – 5g.cm
Modo de avance rápido	75 – 110g.cm	• 2 – 5g.cm
Modo de rebobinado	• 2 – 5g.cm	75 – 110g.cm

• *Las notas se apoyan en la torsión de la tensión*

11.3 AJUSTE DE LA VELOCIDAD DE LA CINTA

1. Conectar el frecuencímetro a los terminales de salida de línea (LINE OUTPUT).
2. Reproducir la parte de 3kHz de la cinta de prueba STD-301. Al principio, la frecuencia deberá estar entre 2995HZ ~ 3010Hz, y podrá ajustarse girando el resistor semifijo, situado en el orificio de ajuste del motor del eje de arrastre, como se muestra en la figura 11-2.

La velocidad de la cinta aumentará girando hacia la derecha el resistor semifijo, y se reducirá girándolo hacia la izquierda.

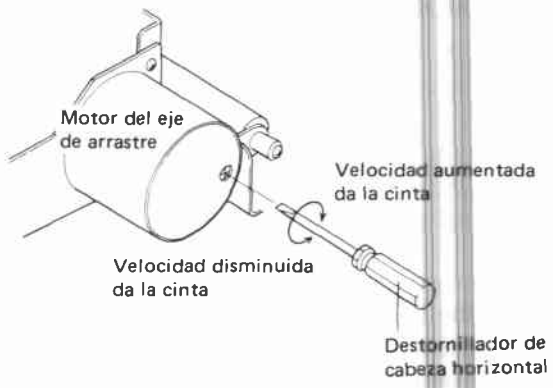


Fig. 11-2 Ajuste de la velocidad de la cinta

11.4 AJUSTE DEL INTERRUPTOR DETECTOR DE GRABACIÓN

Ajustar la lengueta (➡), mostrada en la figura 11-3 mediante la flecha, a una posición en la que al cargar un casete con el detector de prevención contra borrado, el interruptor quede en la posición ON y al cargar un casete sin el detector, quede en la posición OFF.

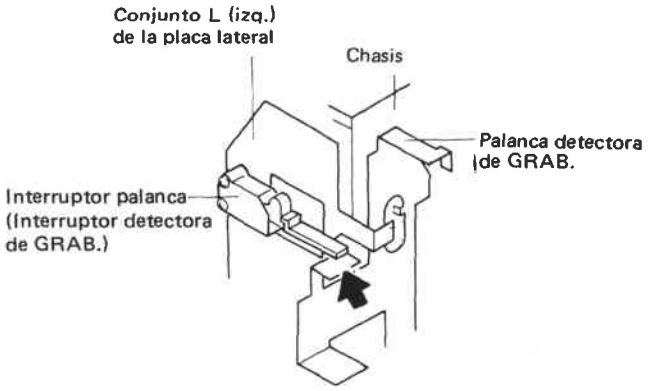


Fig. 11-3 Ajuste del interruptor detector de GRABACIÓN

11.5 AJUSTE DEL CONJUNTO DETECTOR

Aflojar el tornillo ❶ y ajustar la posición de montaje del conjunto detector de modo que cuando se cargue un casete NORMAL, el interruptor deslizante quede en la posición OFF, y cuando se cargue un casete de METAL, el interruptor deslizante quede en la posición ON.

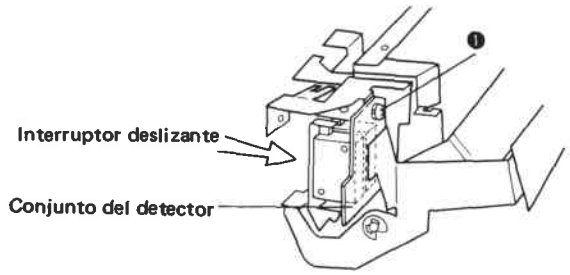


Fig. 11-4 Ajuste del conjunto del detector

11.6 AJUSTE DEL SOLENOIDE DE AVANCE RÁPIDO

1. Establecer el magnetófono en el modo de avance rápido.
2. Aflojar los tornillos ❶ y ajustar la posición de montaje del solenoide de avance rápido de modo que el orificio cuadrado de todo el conjunto de la base del carrete quede empotrado contra el cubo de todo el conjunto del brazo de arrastre (i.e. separación 0) como se muestra en le figura 11-5.

11.7 AJUSTE DEL SOLENOIDE DE REBOBINADO

1. Establecer el magnetófono en el modo de rebobinado.
2. Aflojar los tornillos ❷ y ajustar la posición de montaje del solenoide de rebobinado de modo que el orificio cuadrado de todo el conjunto de la base del carrete quede empotrado contra el cubo de todo el conjunto del brazo de arrastre (i.e. separación 0) como se muestra en la figura 11-5.

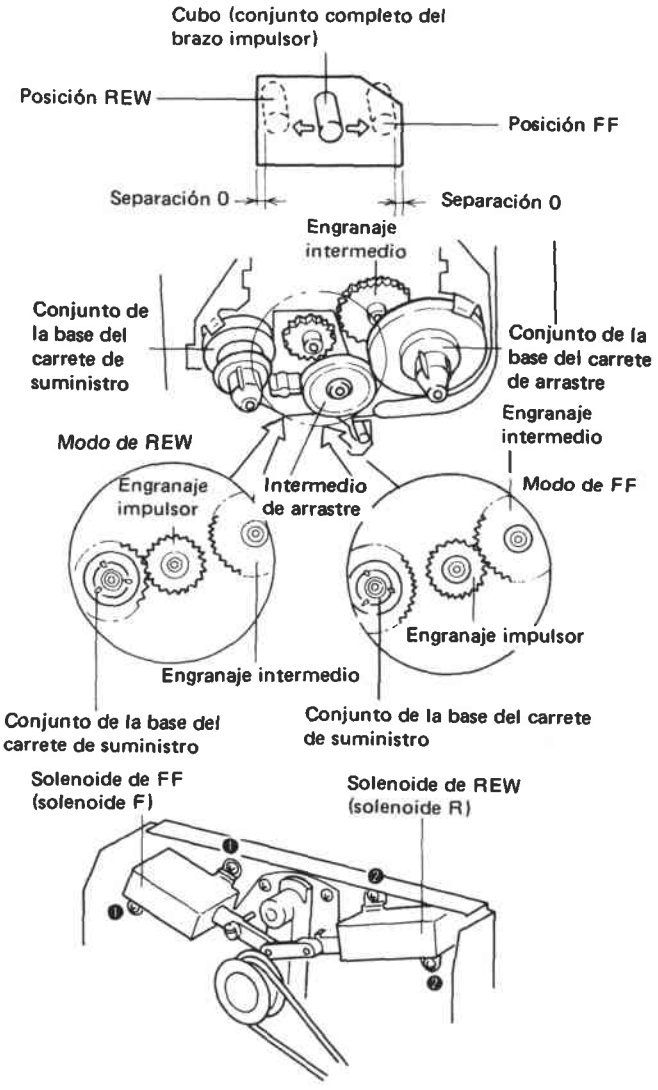


Fig. 11-5 Ajuste del solenoide de FF (REW)

12. RÉGLAGES ÉLECTRIQUES

Précautions

1. Les réglages mécaniques doivent être terminés.
2. Nettoyer les pièces suivantes à l'aide d'un bâtonnet imbibé d'alcool: tête d'enregistrement/lecture, galet presseur, tête d'effacement, courroies en caoutchouc et cabestan.
3. Démagnétiser la tête d'enregistrement/lecture à l'aide d'un démagnétiseur de tête.
4. Ne pas utiliser de tournevis magnétisé pour les réglages.
5. Les réglages et les mesures doivent être réalisés pour les canaux de gauche et de droite avec la tension d'alimentation nominale.
6. Les réglages doivent être effectués dans l'ordre indiqué dans ce manuel de service. Une modification de cet ordre peut empêcher la réalisation de réglages corrects et peut provoquer une baisse de performance.
7. Les niveaux en cours de mesure sont basés sur 0dBv = 1V. Raccorder une charge fictive de 50 kΩ (47 à 52 kΩ) entre les bornes de sortie (OUTPUT).
8. Laisser chauffer (vieillissement) le CT-5 pendant quelques minutes avant de procéder aux réglages.
9. Placer le commutateur DOLBY NR sur OFF et le sélecteur TAPE SELECTOR sur la position NORM, sauf indication contraire.

Equipements/outils d'essai requis

1. Bande d'essai
   - STD-341A ..... Pour le réglage de la reproduction
   - STD-608A ..... Bande "NORMAL" vierge
   - STD-603 ..... Bande "CrO_2" vierge
   - STD-604 ..... Bande "METAL" vierge
2. Oscillateur BF
3. Millivoltmètre alternatif (mV CA)
4. Atténuateur
5. Oscilloscope
6. Résistance 50 kΩ (47 à 52 kΩ)

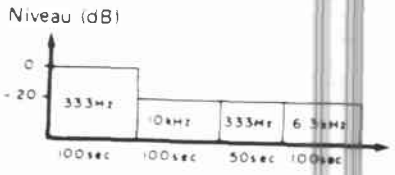


Fig. 12-1 Contenu de la bande d'essai STD-341A

12.1 RÉGLAGE DU SYSTEME DE REDUCTION DE BRUIT DOLBY

Réglage

Mode ..... Enregistrement
Signal d'entrée ..... 700Hz, - 10dBv (316mV) sur LINE INPUT
Indicateur 1mV CA ..... TP1 (canal gauche, canal droit) du montage Dolby
Indicateur 2mV CA ..... TP2 (canal gauche, canal droit) du montage Dolby

Les canaux droit et gauche étant identiques, la numérotation des bornes TP du montage Dolby est valable pour les deux canaux. Voir la Fig. 12-9 lors du réglage.

Méthode

1. Régler la commande de niveau d'entrée afin que l'indicateur 1mV CA indique - 2,2dBv (776mV).
2. Régler le VR403 (canal gauche) et le VR503 (canal droit) afin que l'indicateur 2mV CA indique - 2, 2dBv (776mV).
3. Régler ensuite le CT-5 sur le mode de reproduction et transmettre le signal d'entrée (700Hz, - 10dBv; 316mV) au TP1 (canal gauche) et TP2 (canal droit) du montage principal.
4. Régler l'atténuateur afin que l'indicateur 2mV CA indique - 2,2dBv (776mV) et régler ensuite le VR401 (canal gauche) et le VR501 (canal droit) afin que l'indicateur 1mV CA indique - 2,2dBv (776mV).
5. Transmettre le signal d'entrée (700Hz, - 10dBv; 316mV) sur LINE INPUT.
6. Régler le CT-5 sur le mode d'enregistrement et raccorder l'indicateur mV CA sur la borne REC OUT du montage Dolby. Régler la commande de niveau d'entrée (INPUT) afin que l'indicateur mV CA indique - 32,6dBv (23,4mV).
7. Régler le commutateur du réducteur de bruit Dolby sur ON position (type C) et régler l'atténuateur afin que l'indicateur 1mV CA indique - 32,6dBv (23,4mV) et régler ensuite le VR402 (canal gauche) et le VR502 (canal droit) afin que l'indicateur 2mV CA indique - 21,6dBv (83,1mV).

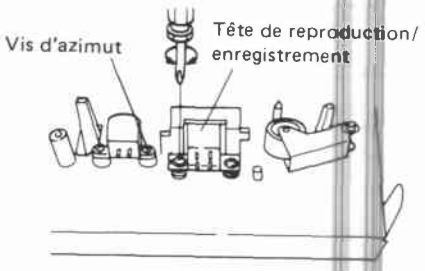


Fig. 12-2 Réglage de l'azimut de la tête

12.2 RÉGLAGE EN AZIMUT DE LA TÊTE

Préparation

Mode ..... Lecture
Bande d'essai ..... STD-341A (10kHz, -20dB)
Millivoltmètre CA ..... A la sortie de ligne (LINE OUTPUT)
VR101, VR201 ..... Tournées en position maximum

Procédure

Régler la vis de réglage d'azimut de manière à obtenir l'indication maximum du millivoltmètre CA pour les canaux de gauche et de droite. Lorsque ce réglage est terminé, verrouiller la vis à l'aide du blocage de vis.

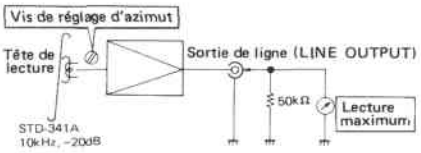


Fig. 12-3 Réglage d'azimut de la tête

12.3 RÉGLAGE DE L'ÉGALISATION DE LECTURE

Préparation

Mode ..... Lecture
Bande d'essai ..... STD-341A (333Hz et 6,3kHz, -20dB)
Millivoltmètre CA ..... Sortie de ligne (LINE OUTPUT)

Procédure

1. Procéder à la reproduction des passages de 333Hz et de 6,3kHz de la bande STD-341A et vérifier que la différence entre les deux niveaux de sortie n'excède pas 1,5dB±2dB.
2. Brancher le terminal n° 22 au terminal n° 23 de montage principal. Procéder de nouveau à la reproduction des passages de 333Hz et de 6,3kHz et vérifier que la différence entre les deux niveaux de sortie n'excède pas -2,5dB ±2dB.

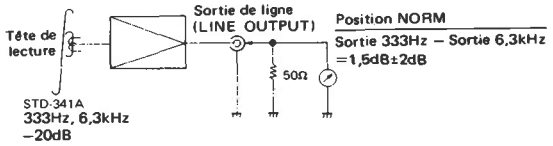


Fig. 12-4 Contrôle de l'égalisation de lecture

12.4 RÉGLAGE DU NIVEAU DE LECTURE

Ce réglage déterminant le niveau de DOLBY NR pendant la lecture, il doit être réalisé avec précision.

Préparation

Mode ..... Lecture
Bande d'essai STD-341A (333Hz, 0dB)
Millivoltmètre CA ..... TP1 (canal de gauche "L") et TP1 (canal de droite "R") de l'ensemble DOLBY

Procédure

Régler VR101 (canal de gauche) et VR201 (canal de droite), de manière à ce que le millivoltmètre CA indique -1,2dBv (0,87V).

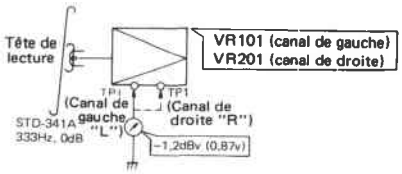


Fig. 12-5 Réglage du niveau de lecture

12.5 RÉGLAGE DE LA RÉPONSE EN FRÉQUENCE GLOBALE

Préparation

Mode ..... Enregistrement
Bande d'essai STD-608A, STD-603, STD-604
Millivoltmètre CA ..... Sortie de ligne LINE OUTPUT
Signal d'entrée ..... 333Hz, -30dBv (31mV) à l'entrée de ligne LINE INPUT

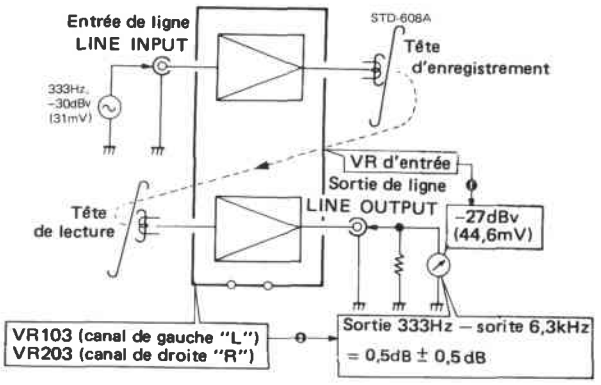


Fig. 12-6 Réglage de la réponse en fréquence ale enregistrement/lecture

Procedure

1. Adjust the INPUT level control so that the AC mV meter reads - 27dBv (44.6 mV).
2. Record the 333Hz and 6.3kHz signals onto the STD-608A. Playback the tape and adjust the VR103 (L ch) and VR203 (R ch) so that the difference between two is +0.5dB±0.5dB.

12.6 RECORD LEVEL ADJUSTMENT

Since this adjustment determines the DOLBY NR level during recording, it should be performed precisely.

Setting

Mode ..... Record
Test Tape STD-608A, STD-603, STD-604
AC mV meter ..... TP2 (L ch) and TP2 (R ch) of the DOLBY assembly
Input Signal ..... 333Hz, −10dBv (316mV) to LINE INPUT

Procedure

1. Set the TAPE SELECTOR to the NORM position.
2. Adjust the INPUT level control so that the AC mV meter reads - 5.2dBv (0.55V).
3. Record the 333Hz signal onto the STD-608A. Play back the tape and adjust the VR102 (L ch) and VR202 (R ch) so that the AC mV meter reads −5.2dBv (0.54V).
4. Record the 333Hz signal onto the STD-603. Play back the tape and check that the AC mV meter reads −5.2dBv (0.55V) ±1.5dB.
5. Record the 333Hz signal onto the STD-604. Play back the tape and check that the AC mV meter reads −5.2dBv (0.55V) ±1.5dB.

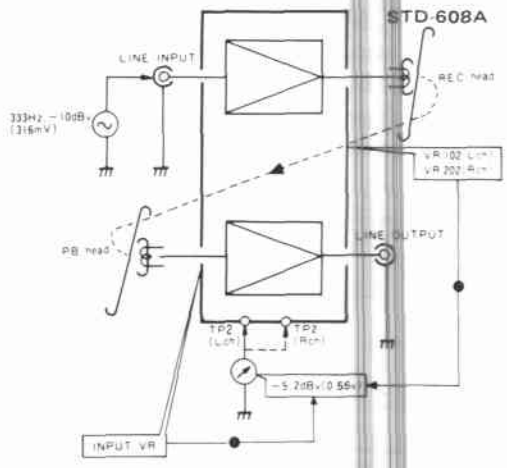
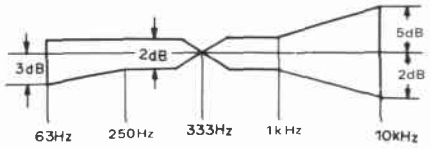


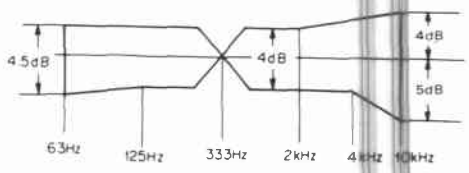
Fig. 12-7 Recording level adjustment

Frequency Response

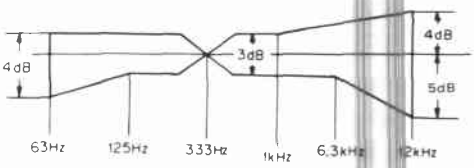
Using STD-341A with DOLBY NR OFF
However, the right channel is compensated by −1dB at 63Hz, and −0.5dB at 125Hz because of the insulation effect.



Using STD-608A with DOLBY NR ON (B/C type)

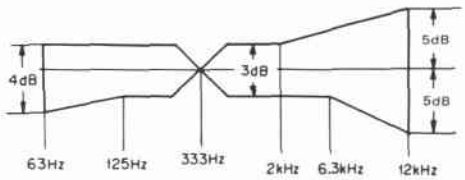


Using STD-603 with DOLBY NR OFF

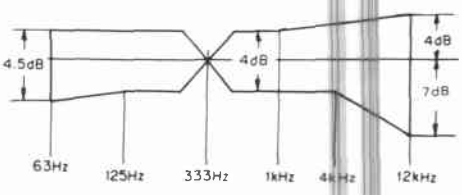


Overall Frequency Response

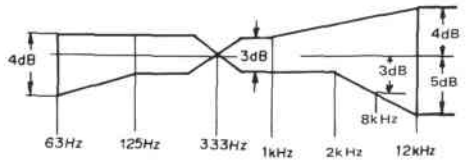
Using STD-608A with DOLBY NR OFF



Using STD-603 with DOLBY NR ON (B/C type)



Using STD-604 with DOLBY NR OFF



Using STD-604 with DOLBY NR ON (B/C type)

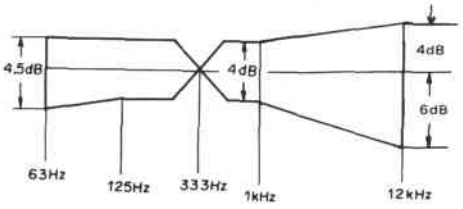


Fig. 12-8 Frequency response

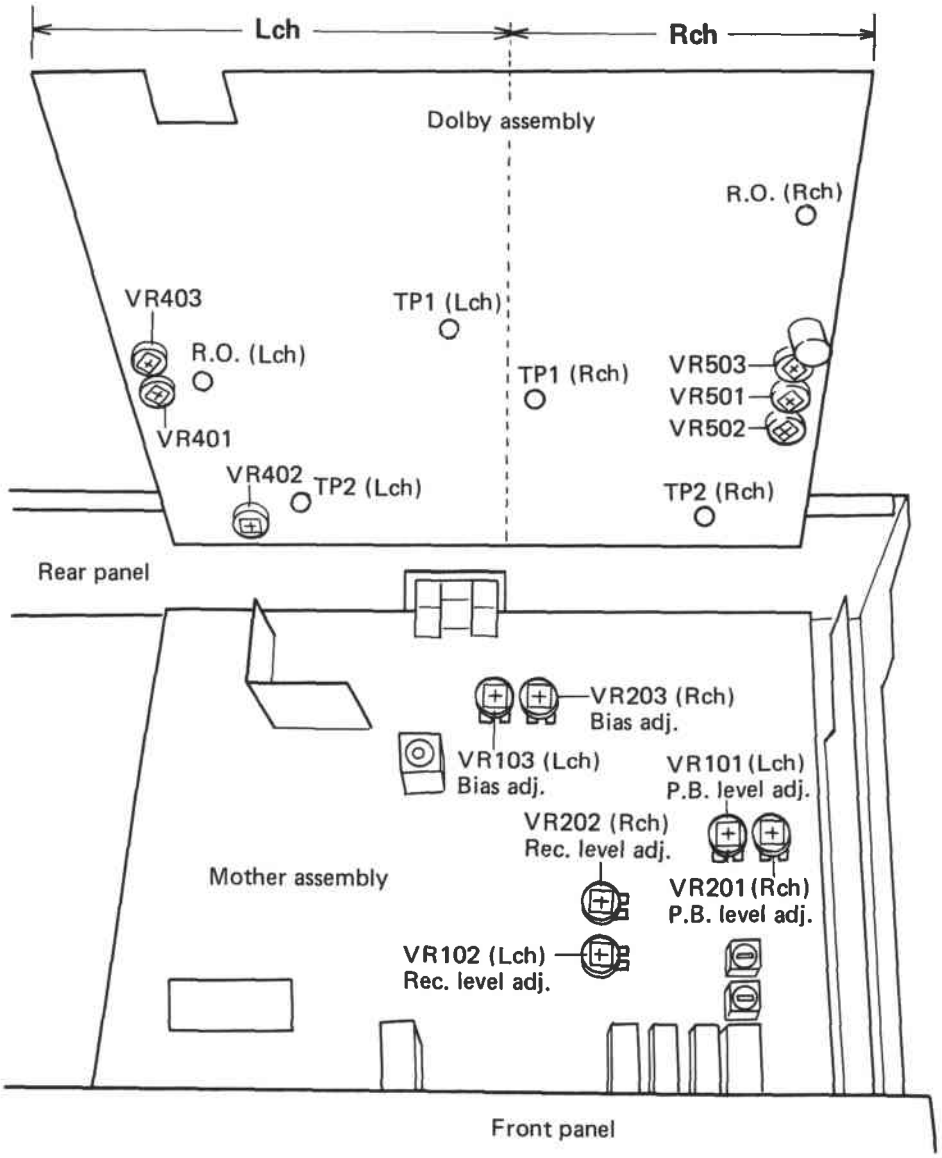


Fig. 12-9 Adjustment points

12. AJUSTES ELÉCTRICOS

Precauciones

1. Deberán completarse los ajustes mecánicos.
2. Limpiar las partes siguientes con algodón humedecido en alcohol: cabeza de grabación/reprodución, rodillo de arrastre, cabeza de borrado, correas de goma y eje de arrastre.
3. Desmagnetizar la cabeza de grabación/reproducción con un desmagnetizador de cabezas.
4. No utilizar destornilladores magnetizados para los ajustes.
5. Los ajustes y las mediciones deberán realizarse para la tensión nominal de suministro de los canales izquierdo y derecho.
6. Los ajustes deberán realizarse en el orden dado en este manual de servicio. Si se altera el orden los ajustes pueden resultar inútiles, dando como resultado una pérdida de rendimiento.
7. El nivel durante las mediciones se basa en 0dBv = 1V. Conectar un resistor fícticio de 50Kohmios (47 ~ 52Kohmios) a los terminales de salida (OUTPUT).
8. Dejar que el CT-5 se precaliente durante algunos minutos antes de proceder con el ajuste.
9. Poner el interruptor de reducción de ruido Dolby (DOLBY NR) en la posición OFF y el selector de cintas (TAPE SELECTOR) en la posición NORM a menos de que se diga otra cosa.

Equipos/herramientas de pruebas requeridos:

1. Cinta de prueba
   - STD-341A ..... para el ajuste de reproducción
   - STD-608A ..... cinta NORMAL en blanco
   - STD-603 ..... cinta CrO_2 en blanco
   - STD-604 ..... cinta de METAL en blanco
2. Oscilador sonoro
3. Milivoltímetro de CA (AC mV)
4. Atenuador
5. Osciloscopio
6. Resistor de 50Kohmios (47 ~ 52Kohmios)

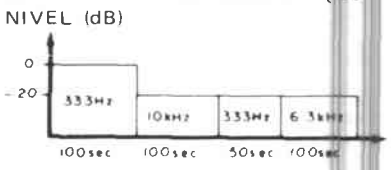


Fig. 12-1 Contenido de la cinta de prueba STD-341A

12.1 AJUSTE DEL SISTEMA DE REDUCCIÓN DE RUIDO DOLBY

Ajuste

Modo ..... grabación
Señal de entrada ..... 700Hz, -10dBv (316mV) a LINE INPUT
Multivoltímetro 1 de CA ..... TP1 (canales izq. y der.) del conjunto Dolby
Multivoltímetro 2 de CA ..... TP2 (canales izq. y der.) del conjunto Dolby.

Puesto que los canales izquierdo y derecho son idénticos, la numeración de los terminales de TP (puntos de prueba) del conjunto Dolby se aplica a ambos canales. Cuando se realice el ajuste, referirse a la Fig. 12-9.

Procedimiento

1. Ajustar el control del nivel de entrada (INPUT) de modo que el multivoltímetro 1 de CA indique -2,2dBv (776mV).
2. Ajustar el VR403 (canal izq.) y VR503 (canal der.) de modo que el multivoltímetro 2 de CA indique -2,2dBv (776mV).
3. Luego, establecer el CT-5 en el modo de reproducción y aplicar la señal de entrada (700 Hz, -10dBv; 316mV) al TP1 (canal izq.) y al TP2 (canal izq.) del conjunto principal.
4. Ajustar el arenuador de modo que el multivoltímetro 2 de CA indique -2,2dBv (776mV) y luego ajustar el VR401 (canal izq.) y VR501 (canal der.) de modo que el multivoltímereo 1 de CA indique -2,2dBv (776mV).
5. Aplicar la senal de entrada (700Hz, -10dBv; 316mV) a la entrada de línea (LINE INPUT).
6. Establecer el CT-5 en el modo de grabación y conectar el multivoltímereo de CA al terminal R.O. (salida de grabación) del conjunto Dolby. Ajustar el control del nivel de entrada (INPUT) de modo que el multivoltímetro de CA indique -32,6dBv (23,4mV).
7. Ajustar el interruptor del sistema DOLBY NR en la posición ON (tipo C) y ajustar el atenuador de modo que el multivoltímetro 1 de CA indique -32,6dBv (23,4mV) y luego ajustar el VR402 (canal izq.) y el VR502 (canal der.) de modo que el multivoltímereo 2 de CA indique -21,6dBv (83,1mV).

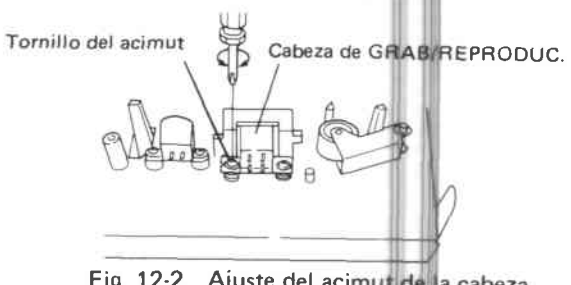


Fig. 12-2 Ajuste del acimut de la cabeza

12.2 AJUSTE DEL ACIMUT DE LA CABEZA

Ajuste

Modo ..... reproducción
Cinta de prueba ..... STD-341A (10kHz, -20dB)
Milivoltímetro de CA ... LINE OUTPUT
VR101, VR201 ..... incrementar a la posición máxima

Procedimiento

Ajustar el tornillo de ajuste del acimut para que el milivoltímetro de CA ofrezca las lecturas máximas de los canales izquierdo y derecho. Después de este ajuste, enclavar el tornillo con el bloqueador del tornillo.

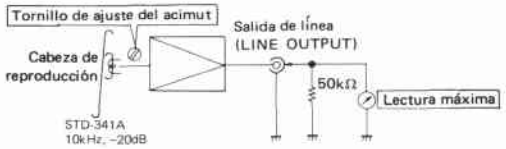


Fig. 12-3 Ajuste de acimut de la cabeza

12.3 AJUSTE DEL ECUALIZADOR DE REPRODUCCIÓN

Ajuste

Modo ..... reproducción
Cinta de prueba ..... STD-341A (333Hz y 6,3kHz, - 20dB)
Milivoltímetro de CA ... LINE OUTPUT

Procedimiento

1. Reproducir las partes de 333Hz y 6,3kHz de la STD-341A, y comprobar la diferencia entre los dos niveles de salida no exceda de 1,5dB ±2dB.
2. Conectar el terminal no. 22 al terminal no. 23 del conjunto principal. Reproducir ne nuevo las partes de 333Hz y 6,3kHz, y comprobar que la diferencia entre los dos niveles de salida no exceda de - 2,5dB±2dB.

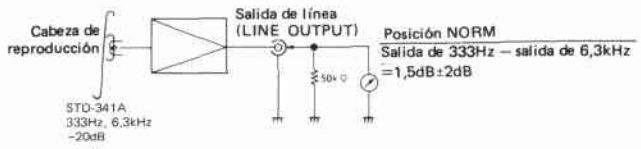


Fig. 12-4 Comprobación del ecualizador de reproducción

12.4 AJUSTE DEL NIVEL DE REPRODUCCIÓN

Puesto que este ajuste determina el nivel del sistema Dolby durante la reproducción, deberá realizarse con precisión.

Ajuste

Modo ..... reproducción
Cinta de prueba STD-341A (333Hz, 0dB)
Milivoltímetro de CA ... TP1 (canal izq.) y TP1 (canal der.) del conjunto DOLBY

Procedimiento

Ajustar la VR101 (canal izquierdo) y la VR201 (canal derecho) de modo que el milivoltímetro de CA indique - 1,2dBv (0,87V).

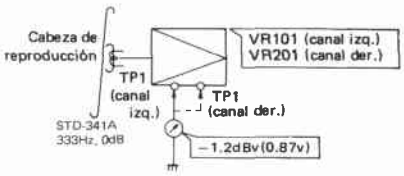


Fig. 12-5 Ajuste del nivel de reproducción

12.5 AJUSTE GENERAL DE LA RESPUESTA EN FRECUENCIA

Ajuste

Modo ..... grabación
Cinta de prueba STD-608A, STD-603, STD-604
Milivoltímetro de CA ... LINE OUTPUT
Señal de entrada ..... 333Hz, - 30dBv (31mV) a LINE INPUT

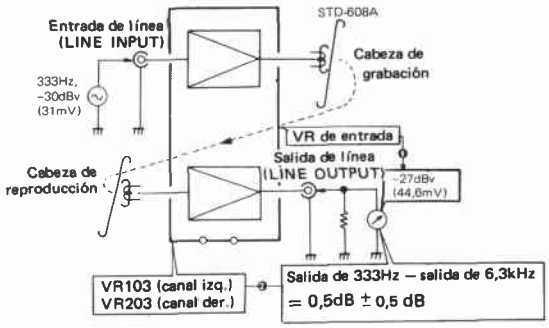


Fig. 12-6 Ajuste grabación/reproducción de la respuesta en frecuencia

Procédure

1. Régler la commande de niveau d'entrée INPUT de manière à ce que le millivoltmètre CA indique - 27dBv (44,6mV).
2. Enregistrer les signaux à 333Hz et à 6,3kHz sur STD-608A. Lire la bande et régler VR103 (canal de gauche) et VR203 (canal de droite) de manière à ce que la différence entre les deux soit de +0,5dB±0,5dB.

12.6 REGLAGE DU NIVEAU D'ENREGISTREMENT

Ce réglage déterminant le niveau de DOLBY NR pendant l'enregistrement, il doit être réalisé avec précision.

Préparation

Mode ..... Enregistrement
Bande d'essai STD-608A, STD-603 STD-604
Millivoltmètre CA ..... TP2 (canal de gauche "L") et TP2 (canal de droite "R") de l'ensemble DOLBY
Signal d'entrée ..... 333Hz, - 10dBv (316mV) à l'entrée de ligne LINE INPUT

Procédure

1. Placer le sélecteur de bande TAPE SELECTOR sur la position NORM.
2. Régler la commande de niveau d'entrée INPUT de manière à ce que le millivoltmètre CA indique - 5,2dBv (0,55V).
3. Enregistrer le signal de 333Hz sur la bande STD-608A. Lire la bande et régler VR102 (canal de gauche) et VR202 (canal de droite) de manière à ce que le millivoltmètre CA indique - 5,2dBv (0,54V).
4. Enregistrer le signal de 333Hz sur la bande STD-603. Lire la bande et vérifier que le millivoltmètre CA indique - 5,2dBv (0,55V) ±1,5dB.
5. Enregistrer le signal de 333Hz sur la bande STD-604. Lire la bande et vérifier que le millivoltmètre CA indique - 5,2dBv (0,55V) ±1,5dB.

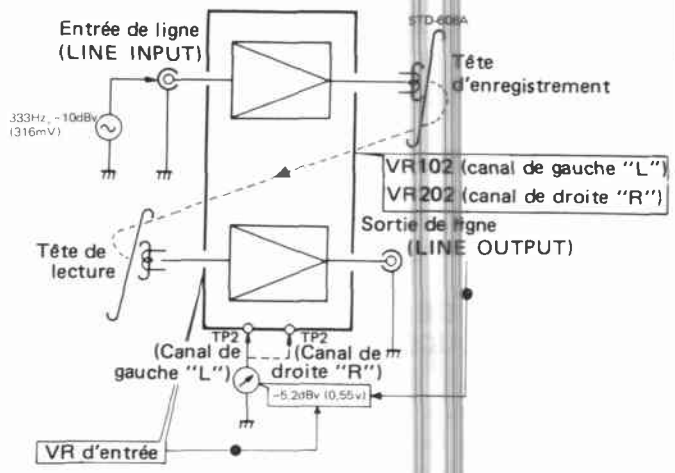
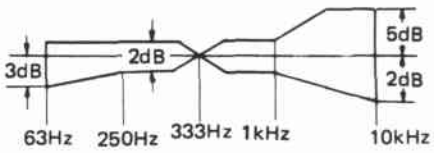


Fig. 12-7 Réglage du niveau d'enregistrement

Réponse en fréquence

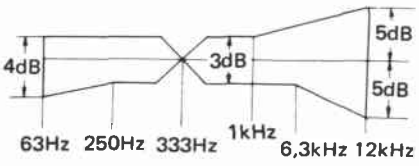
Utilisation de STD608A avec le circuit Dolby hors service (OFF)

Le canal de droite est compensé de -1dB à 63Hz et de -0,5dB à 125Hz, à cause de l'effet d'isolement

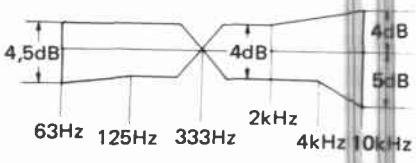


Réponse en fréquence globale

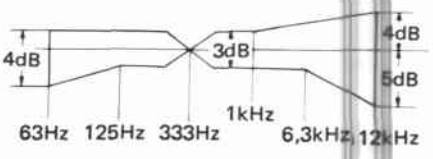
Utilisation de STD608A avec le circuit Dolby hors service (OFF)



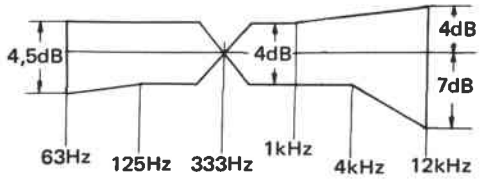
Utilisation de STD608A avec le circuit Dolby en service (ON) (type B/C)



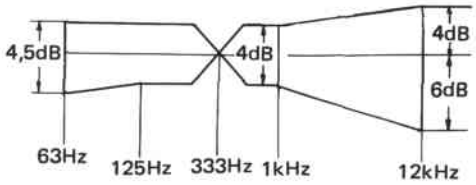
Utilisation de STD603 avec le circuit Dolby hors service (OFF)



Utilisation de STD603 avec le circuit Dolby en service (ON) (type B/C)



Utilisation de STD604 avec le circuit Dolby en service (ON) (type B/C)



Utilisation de STD604 avec le circuit Dolby hors service (OFF)

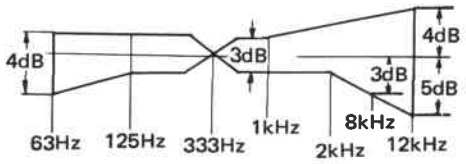


Fig. 12-8 Réponse en fréquence

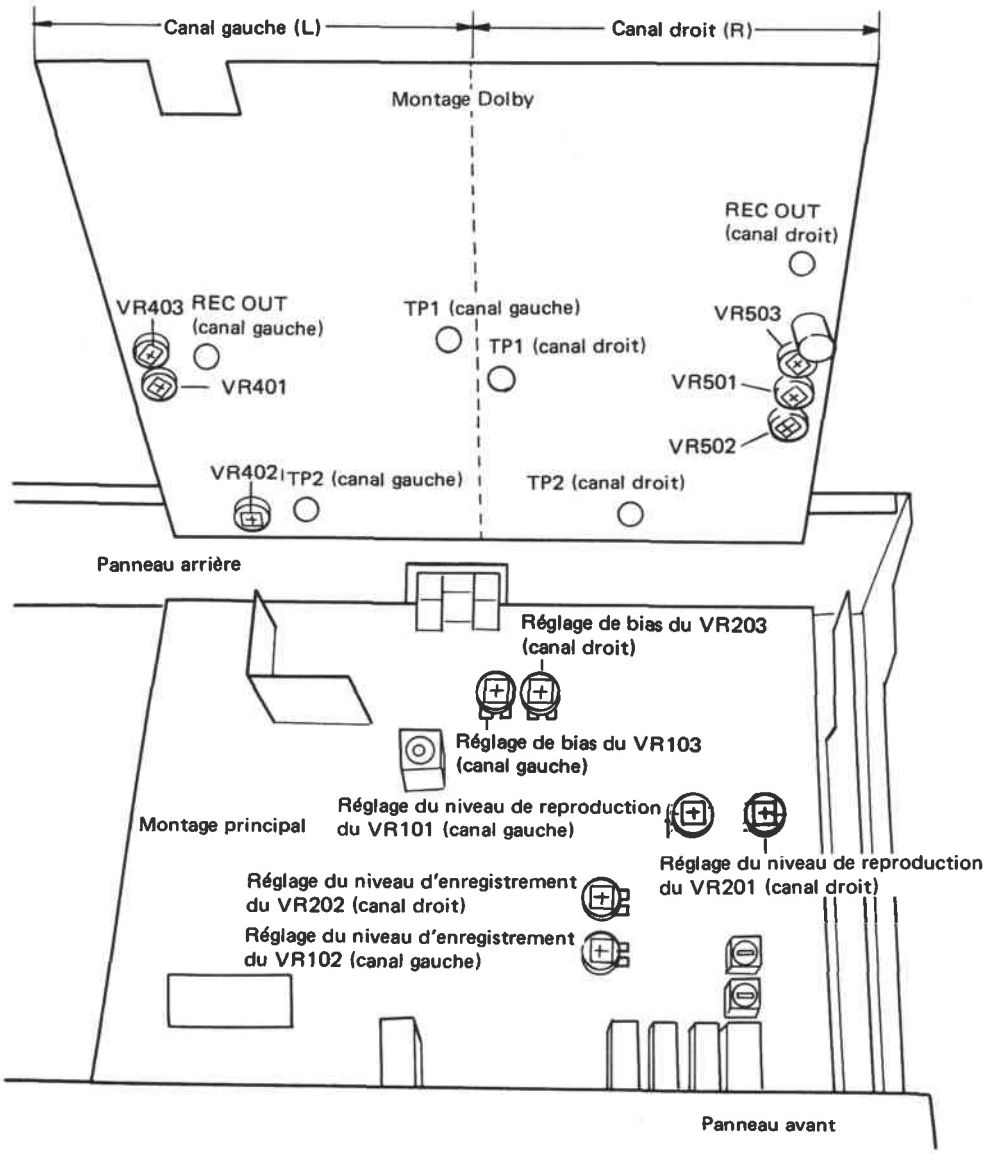


Fig. 12-9 Points de réglage

Procedimiento

1. Ajustar el control del nivel de entrada (INPUT) de modo que el milivoltímetro de CA indique -27dBv (44,6mV).
2. Grabar las señales de 333Hz y 6,3kHz de la STD-608A. Reproducir la cinta y ajustar la VR103 (canal izquierdo) y VR203 (canal derecho) de modo que la diferencia entre las dos sea de +0,5dB±0,5dB.

12.6 AJUSTE DEL NIVEL DE GRABACIÓN

Puesto que este ajuste determina el nivel del sistema Dolby durante la grabación, deberá realizarse con precisión.

Ajuste

Modo ..... grabación
Cinta de prueba STD-608A, STD-603, STD-604
Milivoltímetro de CA ... TP2 (canal izq.) y TP2 (canal der.) del conjunto DOLBY
Señal de entrada ..... 333Hz, -10dBv (316mV) a LINE INPUT

Procedimiento

1. Poner el selector de cintas (TAPE SELECTOR) en la posición NORM.
2. Ajustar el control del nivel de entrada (INPUT) de modo que el milivoltímetro de CA indique -5,2dBv (0,55V).
3. Grabar la señal de 333Hz en la STD-608A. Reproducir la cinta y ajustar la VR102 (canal izquierdo) y la VR202 (canal derecho) de modo que el milivoltímetro de CA indique -5,2dBv (0,54V).
4. Grabar la señal de 333Hz en la STD-603. Reproducir la cinta y verificar que el milivoltímetro de CA indique -5,2dBv (0,55V) ±1,5dB.
5. Grabar la señal de 333Hz en la STD-604. Reproducir la cinta y verificar que el milivoltímetro de CA indique -5,2dBv (0,55V) ±1,5dB.

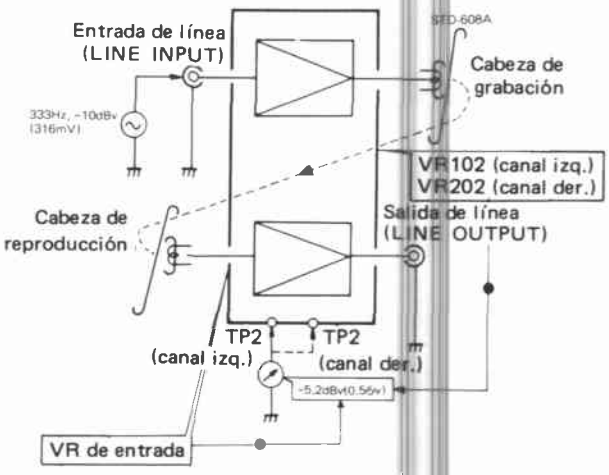
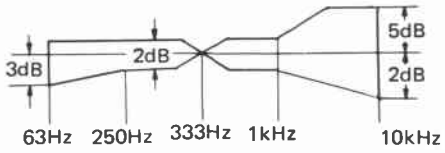


Fig. 12-7 Ajuste del nivel de grabación

Respuesta en frecuencia

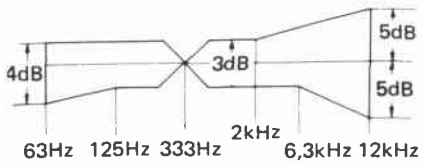
Empleando la STD-608A con el sistema DOLBY NR en la posición OFF

Sin embargo, se compensa el canal derecho en -1dB a 63Hz, y -0,5dB a 125Hz debido al efecto aislante

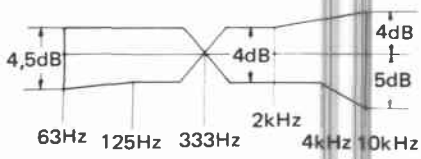


Respuesta en frecuencia globale

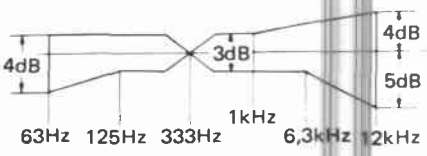
Empleando la STD-608A con el sistema DOLBY NR en la posición OFF



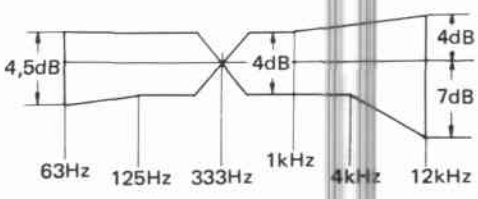
Empleando la STD-608A con el sistema DOLBY NR en la posición ON (tipo B/C)



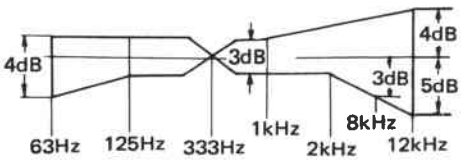
Empleando la STD-603 con el sistema DOLBY NR en la posición OFF



Empleando la STD-603 con el sistema DOLBY NR en la posición ON (tipo B/C)



Empleando la STD-604 con el sistema DOLBY NR en la posición OFF



Empleando la STD-604 con el sistema DOLBY NR en la posición ON (tipo B/C)

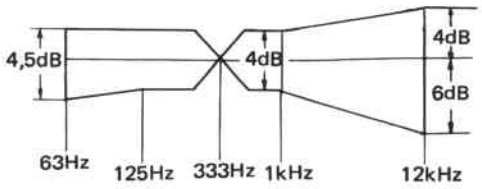


Fig. 12-8 Respuesta en frecuencia

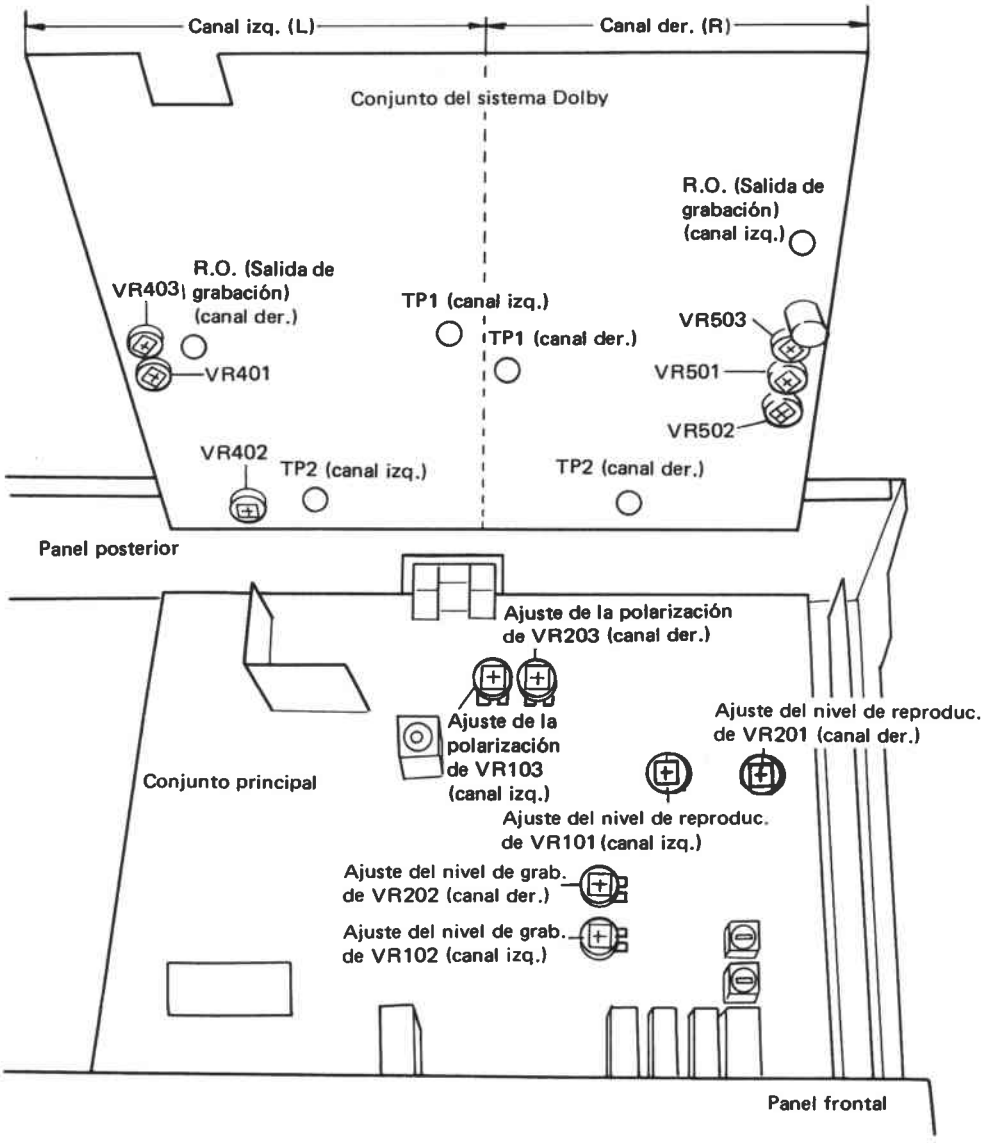

Canal izq. (L)
Canal der. (R)
Conjunto del sistema Dolby
R.O. (Salida de grabación) (canal izq.)
R.O. (Salida de grabación) (canal der.)
VR403
VR401
TP1 (canal izq.)
TP1 (canal der.)
VR503
VR501
VR502
VR402
TP2 (canal izq.)
TP2 (canal der.)
Panel posterior
Ajuste de la polarización de VR203 (canal der.)
Ajuste de la polarización de VR103 (canal izq.)
Ajuste del nivel de reproduc. de VR201 (canal der.)
Conjunto principal
Ajuste del nivel de reproduc. de VR101 (canal izq.)
Ajuste del nivel de grab. de VR202 (canal der.)
Ajuste del nivel de grab. de VR102 (canal izq.)
Panel frontal

Fig. 12-9 Puntos de ajuste